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Decarbonisation process

EU's climate and energy policy



Development of electricity supply

POLITICAL THOUGHT

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Contents

ENERGY SUPPLY OF THE FUTURE:
BETWEEN CLIMATE PROTECTION
AND ENERGY SCARCITY 4

Daniel Braun

THE EU'S CLIMATE AND ENERGY POLICY IN THE LIGHT OF THE WAR IN
UKRAINE 7

Kevin Oswald

OPPORTUNITIES FOR DEVELOPMENT
OF ELECTRICITY SUPPLY IN NORTH MACEDONIA 17

Roland Ziegler

DECARBONISATION PROCESS IN THE
WESTERN BALKANS 23

Elma Agić Šabeta



ENERGY SUPPLY OF THE FUTURE: BETWEEN CLIMATE PROTECTION AND ENERGY SCARCITY

Modern human life without secure energy supplies has been virtually impossible since nearly a century, and hardly any place on earth can do without it. Nevertheless, our way of generating energy for power and mobility has led to considerable challenges with regard to the climate, since burning fossil fuels produces climate-damaging CO₂, and its extraction and transport also include many environmental risks. For many countries like Germany, in particular, nuclear power is not an alternative, due to the Chernobyl and Fukushima disasters and unclear final storage issues.

The initiated path of energy transformation towards renewables is already being actively shaped in many regions of the world. The EU, for its part, launched the New Green Deal, a transformation package worth trillions, while at the same time increasing CO₂ taxation in order to accelerate the transformation of society as a whole in the EU member states. The Russian invasion of Ukraine on 24 February 2022 now confronts almost all countries of the world that do not have own energy resources with dramatic problems caused by hardly expected price jumps on the energy markets. The temporary use of Russian gas, a fossil fuel causing fewer environmental problems, which had been envisioned by Germany, among others, is now in question, as is the original roadmap for the energy transformation. Prolonging the lifespans of coal-fired power plants, postponing the nuclear phaseout and even new construction projects can be observed in Europe. Even Germany's new federal government, which had a very ambitious start with regard to energy and environmental issues, had to adjust and scale back its goals. Should the Russian aggression continue, further adaptations will be necessary, which could set back the so-called energy transition and require previously unimaginable measures.

Therefore, one of the most important measures in view of the past months' energy policy distortions is to save energy by making consumption as well as energy behaviour more efficient, without completely neglecting urgent environmental issues. For the Western Balkan countries, this is a huge challenge. On the one hand, energy generation is still based on outdated, inefficient and highly polluting coal-fired power plants, and many people with low incomes burn toxic materials, leading to air pollution levels being measured at record highs in the capital cities of the region, which is extremely harmful to health. On the other hand, increasing energy prices

for the countries of the region leave little space for adjustments, since their financial resources are extremely limited. Moreover, as the EU's "extended work benches" and exporters, the Western Balkans also have to implement CO2 pricing, which affects competitiveness as well as incomes. However, the situation is not hopeless, for there is much potential for renewable energies, energy efficiency and regional cooperation, but the EU must also be a partner here. To this goal, more effort and good governance are required on the part of the political elites, while citizens have to change their awareness, for all too often they do not use energy carefully, even though prices are increasing.

In the special issue at hand, we discuss these current matters in order to contribute to the global debate on the number-one topic of the future.

I hope you will enjoy this issue of Politicka Misla.

Yours,



SHORT BIOGRAPHY



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currently works as a policy advisor in the field of energy and resources in the department 2030 agenda of Konrad Adenauer Foundation in Berlin. From August 2020 to December 2021, he served as deputy head of the foundation's Brazil office based in Rio de Janeiro. Mr. Oswald completed a transatlantic double degree master's program in International Relations at Syracuse University in New York and the Hertie School of Governance in Berlin. He also holds a bachelor's degree in European Studies from the University of Passau. Various internships took him to the German Embassies in La Paz and Washington D.C., among others, before he gained further professional experience as a visiting associate at the energy policy think tank Agora Energiewende and as an assistant to the planning group of the CDU/CSU parliamentary group in the German Bundestag.

Kevin Oswald

THE EU'S CLIMATE AND ENERGY POLICY IN THE LIGHT OF THE WAR IN UKRAINE

Between climate policy ambitions and the challenges of supply security

POLITICAL THOUGHT

64



The Russian invasion of Ukraine not only represents a “turning point” for European security and defence policy, but also means that the European Commission’s Directorate-General for Energy (EUCOM) in Brussels, as well as basically all ministries responsible for energy policy in the 27 EU Member States (EU-MS), have been in crisis mode since February 24, 2022. Seemingly overnight, the geopolitical and geo-economic aspects of the energy transition considerably gained importance, and overcoming the dependence on fossil energy sources from Russia has become a core issue. Since this challenge is so urgent and the individual patterns of dependence resulting from past decisions that each member state has made are so diverse, the EU is facing an enormous task – even more so since, at the same time, efforts to reduce greenhouse gas emissions have to be intensified and the *European Green Deal* has to be further implemented in order to reach the ambitious goal of carbon neutrality.¹ Hence, what exactly are the goals that the EU pursues with regard to climate and energy policy, and what are the implications of the war in Ukraine?

With its *Green Deal*, the EU assumed the leading role in international efforts to combat climate change and set the ambitious target to reduce CO₂ emissions by 55 per cent as compared to 1990 levels by the year 2030, so as to become the first climate-neutral continent by 2050.² Considering the fact that more than half of the EU’s energy supplies come from countries outside Europe, the measures that are part of the Green Deal – investments in green technologies, support to the industry’s innovation projects, introduction of clean, low-cost and healthier means of private and public transport, decarbonisation of the energy sector, assurance of energy-efficient building use and cooperation with international partners to diversify the energy supplies – show that one should not underestimate its geopolitical and geostrategic aspects, which were present from the beginning.

Especially its dependence on Russian natural gas supplies, which could come to a halt any time by reason of the West’s sanctions or as a result of a further escalation of the conflict,³ poses a huge additional short term challenge to the EU and its member states. Due to considerably lower CO₂ emissions compared to coal or oil, gas power plants have been regarded as relatively clean and climate friendly. Therefore, the EC decided in early February that investments in natural gas can be classified as sustainable, subject to conditions. According to the EU’s taxonomy guidelines, “sustainable” gas power plants must not exceed certain CO₂ emission limits. Since they are only a replacement of

1 On 11 December 2019, the European Commission initiated the European Green Deal, which pursues the goal of carbon neutrality by 2050.

2 With the European Climate Change Act which came into force in July 2021, the EU commits to reducing net greenhouse emissions by 55 per cent by 2030.

3 On 27 April 2022, Russia stopped gas deliveries to Poland (via the Yamal pipeline) and Bulgaria after those two countries’ governments refused to abide by Russia’s demand for gas payments to be made in roubles. Other countries are currently not (yet) affected.

even more climate-damaging charcoal piles, operating companies must switch to more climate-friendly energy resources by 2035, such as green hydrogen or biogas.

The EU will not be able to replace Russian energy supplies with domestic renewables, at least not in the short run. In the case of Germany, which accounts for almost one third of Russia's gas exports to Europe, "a fast and specific replacement of Russian natural gas by domestic renewable energy sources and the hydrogen that can be generated from them is not possible", as stated by the German National Academy of Sciences Leopoldina.⁴ Nevertheless, the EC plans to reduce its dependence on Russian gas by two thirds by the end of this year. According to the *REPowerEU* plan presented in early March 2022, the EU will completely rid itself of Russian energy supplies well before the year 2030.⁵ This crisis management could lead to a prioritisation of those projects of the *Fit for 55* package that aim to speed up the use of renewables and green hydrogen.

However, since all of these measures take time, in the near term the focus will be on substituting Russian gas and diversifying sources of supply. It is difficult to estimate how much of the natural gas imports that are needed not only for the operation of flexible gas power plants, but also for industry and private households, can be covered by additional LNG (liquefied natural gas) deliveries to Europe in the short, medium and long run. The EU's total capacity of LNG terminals with regasifiers is 156 billion cubic metres per year.⁶ For comparison, NordStream can deliver 55 billion cubic metres of gas per year at maximum capacity. The geographic distribution of European LNG terminals is not optimal, with a heavy concentration in Southern and Western Europe (Spain, France, Italy), while there are no terminals at all in Germany, for instance. The most populous country in the EU, on its part, plans to rent special ships, so-called *floating storage and regasification units*. These floating LNG terminals would be available for regasifying liquefied natural gas this winter already, however, a key prerequisite for the use of this system is an existing connection to the gas grid.⁷

With regard to the climate footprint, importing LNG from Qatar to the European Union would be comparable to the pipeline transport of natural gas from Russia. However, the emissions produced by importing LNG from the USA or Australia would amount to up to seven times more, especially due to much longer transport routes, as well as unconventional recovery techniques that often have a negative impact on the

4 Leopoldina. "How Russian natural gas can be replaced in German and European energy supplies." National Academy of Sciences. 8 March 2022. Retrieved 19 April 2022 from https://www.leopoldina.org/fileadmin/redaktion/Publikationen/Nationale_Empfehlungen/2022_Stellungnahme_Energiesicherheit_V1.1.pdf

5 European Commission. „REPowerEU: Joint European action for more affordable, secure and sustainable energy". 8 March 2022. Retrieved 28 April 2022 from https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511

6 Gas Infrastructure Europe. GIE LNG Database. Retrieved 28 April 2022 from <https://www.gie.eu/transparency/databases/lng-database/>

7 See Handelsblatt. „Floating LNG-terminals: construction in Wilhelmshaven starts already next week". 29 April 2022. Retrieved 1 May 2022 from <https://www.handelsblatt.com/politik/gasversorgung-schwimmende-lng-terminals-baustart-in-wilhelmshaven-bereits-naechste-woche-/28279844.html>.

environment, such as the so-called *fracking*.⁸ Europe's increased demand for liquid gas can also have global consequences regarding climate policy and accordingly lead to massive price increases or even shortages. Especially the largest Asian importers of LNG, notably the People's Republic of China, could be forced to replace gas with coal (again), which is much more climate-damaging and was planned to be reduced, due to the heavily polluted air. At the same time, substituting part of the Russian gas imports by prolonging the life of coal-fired power plants is a risk that Europe itself is facing, and which would doubtlessly have a negative impact on CO₂ emissions, too. According to the *U.S. Energy Information Administration*, coal-fired power generation produces about 75 per cent more CO₂ than generating power using natural gas.⁹

Nuclear power makes sense with regard to climate protection whilst being highly controversial from an environmental and safety point of view. In some parts of Europe, it is experiencing somewhat of a "renaissance", at least to some extent, such as in France and in parts of Eastern Europe, where it is perceived as a symbol of independence in the field of energy policy. Currently, also Belgium is planning to postpone its nuclear phaseout, which had originally been scheduled for 2025, by ten years for reasons of supply security and stable energy prices.¹⁰ The Czech Republic recently issued a tender for the construction of a new reactor that is due to go online in 2036, with construction costs estimated to amount to nearly 6,5 billion euros,¹¹ while Poland is planning to become the 15th EU member state to launch the peaceful use of nuclear power soon.¹²

Despite the challenges described in terms of security of supply for all sectors-electricity, heat, mobility, and industry-as a consequence of the massive dependence on Russia for coal (about 45 percent), gas (about 40 percent), and oil (about 25 percent)¹³, the war in Ukraine could further strengthen the EU's ambitions regarding a decisive clean energy transition. Hence, according to the EC's assessment, "following the invasion of Ukraine by Russia, the case for a rapid clean energy transition has never been stronger and clearer".¹⁴ EC President von der Leyen has repeatedly stressed the significance of accelerating the development of renewable energy with regard to security policy,¹⁵ and even the Visegrad

8 See Greenpeace. LNG – six myths about liquid gas terminals. 28 April 2022. Retrieved 6 May 2022 from <https://www.greenpeace.de/klimaschutz/energiewende/gasausstieg/lng-sechs-mythen>.

9 U.S. Energy Information Administration. "How much carbon dioxide is produced when different fuels are burned?" Retrieved 17 April 2022 from <https://www.eia.gov/tools/faqs/faq.php?id=73&t=11>.

10 See Tagesschau. „Reaction to the war in Ukraine: Belgium to postpone nuclear phaseout“. 19 March 2022. Retrieved 12 April 2022 from <https://www.tagesschau.de/ausland/belgien-atomkraft-101.html>

11 See Faz. „Czech Republic relies on nuclear power for energy security“. 18 March 2022. Retrieved 12 April 2022 from <https://www.faz.net/aktuell/wirtschaft/tschechien-setzt-auf-atomkraft-fuer-energiesicherheit-17889379.html>

12 See ZDF. „Poland plans to build nuclear power plants - what are the consequences for Germany?“ Retrieved 12 April 2022 from <https://www.zdf.de/nachrichten/panorama/polen-atomkraft-folgen-deutschland-100.html>

13 Eurostat. Energy production and imports", accessed on 12.04.2022, energy production and imports – Statistics Explained (europa.eu)

14 European Commission. "Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions." March 2022. Retrieved 17 April 2022 from https://eur-lex.europa.eu/resource.htmluri=cellar:71767319-9f0a-11ec-83e1-01aa75ed71a1.0001.02/DOC_1&format=PDF

15 European Commission. Speech by President von der Leyen at the European Parliament Plenary on the Russian aggression against Ukraine. 01 March 2022. Retrieved 17 April 2022. Speech by the President: Russian aggression against Ukraine (europa.eu).

group, which tends to be rather reserved about climate protection issues, backed the EU's climate policy efforts more clearly than before in the light of the Russian invasion. Michal Kiča for instance, state secretary at the Slovak environment ministry, pointed out that the *Fit for 55* reform package represents a crucial instrument "to cope not only with climate change, but also with all of our energy dependencies".¹⁶ Moreover, in a joint statement, a group of 17 mainly Eastern European members of the European Parliament from the European People's Party and Renew Europe demanded a faster deployment of renewables, increased efforts towards energy efficiency, and fostering EU energy grids integration.¹⁷

Based on the new security policy dimension of energy policy, it can be expected that especially the aspects of the *Green Deal* that lead to reducing the dependence on fossil fuel imports will be focused on. In early April, Frans Timmermans, Vice President of the EC and Commissioner for Climate Action, mentioned an even more ambitious EU renewable energy target for 2030 during a visit to Egypt, which will host the Climate Change conference in November.¹⁸ In July 2021, the EU had decided to increase the share of renewable energy in the final energy consumption from currently 20 to 40 per cent.¹⁹

However, EU member states do not agree on all measures foreseen by the *Fit for 55* reform package. In particular, there is disagreement over the EC's plans to expand the current *European Emission Trading System* (ETS) to the sectors buildings and transport by 2026. Together, those two sectors account for about 40 per cent²⁰ of EU-wide emissions, which are to be reduced by 43 per cent compared to 2005 levels by 2030. Facing dramatically rising energy prices following the war in Ukraine and high inflation in the Eurozone,²¹ critics warn that energy suppliers could pass further increasing energy costs on to the European consumers. In fact, though, with a target entry price of 25 euros per tonne of CO₂ in 2026, the price for diesel would rise by no more than a few cents per litre.²² Especially Poland and Hungary expressed reservations concerning the extension of the ETS at the meeting of the 27 EU environment ministers in March 2022. Further critique with regard to the EC's plans was voiced by Belgium, Romania, the Czech

16 Euractiv. "Europeans rally behind Green Deal in response to Russia's war in Ukraine." March 2022. Retrieved 18 April 2022 from <https://www.euractiv.com/section/energy/news/europeans-rally-behind-green-deal-in-response-to-russias-war-in-ukraine/>.

17 Politico. "Letter on new geopolitical situation and Green Deal." March 2022. Retrieved 17 April 2022 from <https://www.politico.eu/wp-content/uploads/2022/03/07/Letter-new-geopolitical-situation-and-Green-Deal.pdf>.

18 Reuters. "EU could revisit renewable targets in push to quit Russian energy, climate policy chief says." April 2022. Retrieved 19 April 2022 from https://www.reuters.com/business/energy/eu-could-revisit-renewable-targets-push-quit-russian-energy-timmermans-2022-04-10/?taid=625399b48999870001e56ba0&utm_campaign=trueAnthem:+Trending+Content&utm_medium=trueAnthem&utm_source=twitter

19 Reuters. "EU unveils plan to increase renewables share in energy mix to 40% by 2030." 14 July 2021. Retrieved 6 May 2022 from EU unveils plan to increase renewables share in energy mix to 40% by 2030 | Reuters.

20 Centre for European Reform. "How to make the new emissions trading system work for consumers." March 2022. Retrieved 19 April 2022 from https://www.cer.eu/sites/default/files/insight_EC_carbonprices_4.3.22.pdf

21 In April 2022, inflation in the Eurozone reached 7,5 per cent. Statista. "Inflation in the euro area". 29 April 2022. Retrieved 8 May 2022 from Inflation in the euro area – Statistics Explained (europa.eu).

22 Tagesschau. "How the EU plans to expand emissions trade." July 2021. Retrieved 19 April 2022 from <https://www.tagesschau.de/wirtschaft/unternehmen/fit-for-55-emissionshandel-101.html>.

Republic, Spain, Slovakia and Slovenia, among others,²³ while there does not seem to be a majority in the European Parliament in support of the endeavour either, even though climate economists like professor Ottmar Edenhofer of the Potsdam Institute for Climate Impact Research keep pointing out the ETS's significant steering effect.

To conclude, we have to state that Russia's war in Ukraine will have positive as well as negative impact on climate protection. In the short run, thinking of next winter and possible gas shortages, supply and energy security are most important. Hence, the EU and its member states are already working flat out in order to ensure additional liquid gas deliveries, e.g. from the USA and Qatar, to expand the LNG terminal infrastructure in Europe and to fill up gas storage tanks in time to prepare for autumn and winter.²⁴ The imposition of an embargo on Russia's oil is under way, which means that alternative sources have to be found here as well, and in particular that the Central and Eastern European countries that are highly dependent on Russian oil – Hungary, the Czech Republic and Slovakia – have to be supplied otherwise. In the medium and long run, however, there can be no doubt that the new positive connotation of “independence energy” or even “freedom energy”²⁵ will certainly boost renewables and massively speed up their development throughout Europe. For sure, Europe's energy transition can only succeed if efforts towards decarbonisation and reaching carbon neutrality do not come into conflict with supply security.

The energy supply of the future has to be sustainable as well as secure, therefore expanding renewables will not be enough. With an ever increasing share of volatile forms of energy such as solar and wind power, energy storage is gaining importance. Due to the suboptimal weather conditions for renewables and the limited land in densely populated Europe, energy partnerships for the purchase of green hydrogen or other climate-neutral energy sources must also be concluded at an early stage, the corresponding infrastructure must be built, and the conversion of energy-intensive industries in particular (chemicals, steel, cement, etc.) must be driven forward. The EU will only be able to overcome its dependence on fossil energy imports from Russia in a sustainable and cost-effective way if it seeks pan-European solutions and utilises potentials, which necessarily includes further reforms of its energy policy as well as the member states' national policies and, apart from the focus on supply security, entails an approach that is open to technologies for an efficient and affordable transition phase. The Ukraine crisis

23 Euractiv. “High energy costs intensify debate over EU plan to decarbonise heating and transport.” March 2022. Retrieved 18 April 2022 from <https://www.euractiv.com/section/energy-environment/news/high-energy-costs-intensify-debate-over-eu-plan-to-decarbonise-heating-and-transport/>.

24 In early April, the European Parliament voted for a draft law that foresees mandatory minimum filling levels for gas storage facilities in the EU on certain key dates. Hence, storage facilities are to be filled to 80 per cent on 1 November this year, and to 90 per cent in the following years.

25 In his speech at the special session of the German Bundestag on 27 February 2022, Christian Lindner, Federal Minister of Finances, spoke of renewables as “freedom energy”.

has mercilessly shown the EU its own vulnerability, which is why the concept of energy sovereignty (≠ energy self sufficiency!) is crucial.

Doubtlessly, the EU will now consistently pursue the path of the Green Deal towards carbon neutrality in 2050 for security and geopolitical reasons as well, even though it is still rather unclear which concrete goals are associated to it and at what cost energy sovereignty can be achieved. Ultimately, the Western Balkan countries as (potential) EU candidates should also be prepared for this. In the framework of the *Green Agenda Action Plan*, the EU and the Western Balkan states have agreed on a comprehensive climate policy roadmap. According to this economic and investment plan, climate protection measures in the fields of energy, transport and agriculture will be funded with 30 billion euros until 2030²⁶ in order to harmonise the EU's and the Western Balkans' climate policy goals and instruments, including the EU emissions trading scheme. It is in the context of this plan that the *Clean Energy for All Europeans* energy package and the *Decarbonisation Roadmap* were adopted at a Western Balkans ministerial meeting in November 2021.²⁷

Nevertheless, the Western Balkans' apparent formal and political efforts cannot hide the practical difficulties of the energy transition there. Hence, the EU's climate policy ambitions will require the Western Balkan states to carry out significant structural reforms in the energy sector. Exactly those reforms, though, are opposed by numerous interest groups that currently benefit from massive state subsidies. In particular, the EU's increased ambitions regarding climate protection could make the operation of coal-fired power plants in the Western Balkans even less economic.²⁸ The region's power generation, however, still depends on domestic coal. Thus, in Serbia, power generated from coal accounts for 68 per cent of the total power generation, in Bosnia and Herzegovina for 63 per cent, and in Montenegro for 44 per cent,²⁹ with no trend reversal in sight, even though at least North Macedonia (by 2030)³⁰ and Montenegro (by 2035)³¹ have committed to end dates for their coal-fired power generation.

26 Balkan Green Energy News. „Adopted green agenda action plan for Western Balkans brings EUR 9 billion in grants, 2024 deadline to align with EU ETS.“ October 2021. Retrieved 22 April 2022 from <https://balkangreenenergynews.com/adopted-green-agenda-action-plan-for-western-balkans-brings-eur-9-billion-in-grants-2024-deadline-to-align-with-eu-ets/>.

27 Northeast Regional Development Association. „Barometer of the countries' readiness for sustainable energy transition.“ January 2022. Retrieved 20 April 2022 from <https://nerda.ba/file/barometar-eng-final/28>.

28 In 2020, Bosnia and Herzegovina exported 23 per cent of its power production for about 117 million euros. Already a low carbon price of 15 euros per tonne of CO₂ would result in a carbon cost of 170 million euros for the power sector in BiH. See: Agora Energiewende. „The EU's Carbon Border Adjustment Mechanism: Challenges and Opportunities for the Western Balkan Countries.“ January 2022. Retrieved 19 April 2022 from https://static.agora-energiewende.de/fileadmin/Projekte/2021/2021_01_EU_Balkan_Green_Deal/A-EW_251_CBAM_WB-6_WEB.pdf.

29 Northeast Regional Development Association. „Barometer of the countries' readiness for sustainable energy transition.“ January 2022. Retrieved 20 April 2022 from <https://nerda.ba/file/barometar-eng-final/28>.

30 Balkan Green Energy News. „North Macedonia delays coal exit deadline to 2030.“ Januar 2022. Retrieved 21 April 2022 from <https://balkangreenenergynews.com/north-macedonia-delays-coal-exit-deadline-to-2030/>.

31 Euractiv. „Getting off the fence? The future of coal in the Western Balkans.“ September 2021. Retrieved 21 April 2022 from <https://www.euractiv.com/section/energy-environment/opinion/getting-off-the-fence-the-future-of-coal-in-the-western-balkans/>.

The *Carbon Border Adjustment Mechanism* (CBAM) pursued by the EU will most likely also have a negative impact on the Western Balkan candidate countries if they do not introduce *carbon pricing* in good time or even participate in the EU's emissions trading scheme. With the EU being their most important trade partner, the consequences of the CBAM for the Western Balkans' energy exports should not be underestimated. According to the think tank *Agora Energiewende*, the CBAM would have direct impact on the six Western Balkan countries' exports and could lead to a decrease by up to 50 per cent by 2040, due to the high share of coal. The export markets for other carbon-intensive goods will shrink too, with consequences for those countries that could lead far beyond the energy sector.³²

Therefore, it is even more important for the Western Balkans region to change direction in good time and make good investment decisions during the 2020ies with regard to sustainable, secure and affordable energy supplies. From an environmental and economic point of view, it is in the Western Balkans countries' own interest to do so, but it would also mean sending an important political signal to Brussels. The EU, in turn, should see the transformation towards carbon neutrality as a geopolitical opportunity regarding the Western Balkans, particularly in the light of the current crisis, and replace former energy dependence (on Russia) by new energy and climate partnerships with this region.

³² Agora Energiewende. „The EU's Carbon Border Adjustment Mechanism: Challenges and Opportunities for the Western Balkan Countries.“ January 2022. Retrieved 19 April 2022 from https://static.agora-energiewende.de/fileadmin/Projekte/2021/2021_01_EU_Balkan_Green_Deal/A-EW_251_CBAM_WB-6_WEB.pdf.

SHORT BIOGRAPHY



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is since 2019 Managing Director of EVN Elektroabduvanje and EVN Home in North Macedonia. Before he moved to Skopje, he covered several Management positions in EVN Austria, mainly in the field of Supply and Service Business. Beside his long lasting experience in the fields of Electricity market he is an expert in new innovative energy solution as E-Mobility, Photovoltaics and Energy Efficiency solutions.

Roland Ziegler

OPPORTUNITIES FOR DEVELOPMENT OF ELECTRICITY SUPPLY IN NORTH MACEDONIA

POLITICAL THOUGHT

64

A decorative graphic consisting of multiple parallel teal lines that form a diagonal shape, starting from the bottom right and extending towards the top right of the page.

STARTING POSITION

North Macedonia has, in essence, an infrastructure from the time when it was a Yugoslav republic.

The pillar of electricity production is the thermal power plants of the state-owned electricity production company ESM (formerly ELEM) in Bitola in the south of the country. They also have their own coal deposits there. There are various statements about their further usability and quality, but it is assumed that there is only enough coal available for a maximum of 5 to 10 years. The thermal power plant itself is nearing the end of its possible useful life. Larger investments would be required to substantially extend the usage time. Therefore, an investment in a new gas power plant is planned.

A further essential pillar are the ESM hydropower plants. The installed capacity is around 550 megawatts, which is about a third of the production capacity that ESM currently provides.

These include other thermal power plants and oil power plants, which have not been used for a long time, partly for technical and economic reasons.

North Macedonia also has a privately owned gas power plant (TE-TO) in Skopje, but also several smaller private hydropower plants. In recent years there has been an expansion with a wind farm in the south of the country and several larger photovoltaic plants. However, they still have a subordinate role in supplying the country with electricity.

Theoretically, the country would be able to supply itself with electricity, but for technical reasons, the theoretical capacity of the power plants has not been fully available for a long time. The power plants are relatively old and have not been adequately maintained in recent decades. With its power plants ESM in 2020, produced only 3,643 GWh (Gigawatthours) of electricity. In 2010, the production was 6,476 GWh. Production at thermal power plants alone fell from 4,636 GWh to 2,902 GWh (source: European Research Council, 2020 annual report).

Hence, the production capacity of the state-owned ESM can currently cover a maximum of 60% of the electricity consumption in North Macedonia on an annual average. That, more or less, does cover all the months for private households and small businesses. The remaining quantities, primarily for the requirements of the industry and the economy, must be imported at European market prices. This dependence on imports, now, in the current energy crisis has proven to be an expensive misdirected development trend. The state must subsidise the purchase of electricity at a high price, as well as the fuels for the ESM thermal power plants, which are additionally needed, in order to provide an affordable level of electricity price, especially for households

THE SOCIAL CHALLENGE FOR THE ENERGY MARKET

North Macedonia is a relatively poor country. The average household could not afford the usual electricity prices in Europe. Initially, in the Yugoslav Republic of Macedonia, there was a system of redistribution of high costs for the industry and the economy, thus supporting lower household prices. With the privatisation, companies could profit from cheaper prices in the international electricity market. There is now a lack of cross-subsidisation for private households in the system. As described, at first the low level could be maintained, with the state electricity producer ESM being able to pass on its low production costs to private consumers and small businesses through the so-called universal supplier (EVN home). The overly old power plants park and the use of mostly its own coal allows the state producer to produce at relatively low prices. The current market situation and the production capacity of ESM power plants, which is declining, do not allow this to the required extent. The original goal, to make prices gradually approach the market price, had to be temporarily abandoned due to the current development of electricity markets.

In addition to this is the relatively large percentage of electricity in the overall energy consumption, because heating in winter and cooling in summer is mostly with electrical appliances. The development of the electricity market is of particular importance for Macedonian households.

The politically determined, and socially needed, low price level leads to insufficient investments and maintenance of the power plant park because ESM can hardly create adequate financial reserves, s leads to technical problems and failures. These quantities to be replaced must be repurchased at the current high prices on the open market. Because in the near future it can hardly be considered that the price of electricity will be at the same level as before the crisis, this problem may be further exacerbated.

Hence, in the coming years, an urgent investment must be made in the modernisation and expansion of the existing infrastructure. The current energy crisis clearly shows that high dependence on imports is associated with high risks to the security of supply, as well as high import costs. Currently, a tender process is underway for a new hydropower plant in Chebrene and there are specific plans for new construction of a gas power plant at the investment site in Bitola.

FUTURE DEVELOPMENT OPPORTUNITIES AND CHALLENGES

In addition to the necessary investments in the existing power plant park, in the future, it is important to be more strongly oriented toward sustainable electricity supply. This is also important in order to meet future EU requirements. North Macedonia is especially suitable for the construction of photovoltaics. Not only because of the southern position and the high solar radiation, but also the large number of hours of sunshine, which leads to highly economical photovoltaic power systems.

There has been a real boom in photovoltaic systems in recent years. They need suitable areas and possibilities for connection to power networks with sufficient transmission capacity. Expansion possibilities are limited. On the one hand, in North Macedonia, large areas are traditionally used for agriculture, on the other hand, for a higher percentage of decentralized electricity production, appropriate electricity networks are needed that must be upgraded. In the electricity network in the past decades, there has been a stagnation of investments as well, the removal of which requires time and money. However, the increased use of photovoltaics has a central contribution to the future development of electricity production in the country, but also a possible contribution of North Macedonia to the European electricity market.

Photovoltaic systems for the private household are even less developed. On the one hand, this is related to the relatively low income of the households, but also to the low price of electricity, which makes its own investments less attractive. Households that were supplied electricity at a low cost, by the so-called universal supplier, have so far not been allowed to generate electricity themselves in the grid. This has changed recently, so some growth can be expected in this market due to rising electricity prices.

North Macedonia has less favourable preconditions for strong use of wind energy. There is only one wind farm on the border with Greece, and only about 37 megawatts of power have been installed in total. Apart from this, there are few suitable locations for wind energy investments.

Hydropower plants in North Macedonia are relatively well set. However, there is more potential for further upgrading, i.e., more efficient use of existing infrastructure.

The low household income, on the one hand, and the relatively low level of electricity prices so far are leading into a relatively inefficient use of energy. The buildings are usually not insulated enough, and the devices in use are already old and poorly maintained. Most households cannot afford major investments. The support programs announced so far for efficient heat pumps have been used very little. A law on energy efficiency has been adopted, but as before, the relevant bylaws are missing. Households need more attractive incentives and promotion systems to increase energy efficiency.

FRAMEWORK CONDITIONS FOR THE FUTURE DEVELOPMENT OF THE ELECTRICITY MARKET

Although North Macedonia is not currently a member of the European Union and the accession process has not yet begun, the country is closely linked to the European electricity market. The high volumes of imports are bought mainly on the EU power exchanges in Budapest and Sofia. Thus, the whole free market is connected to the EU electricity market. Hence, the political measures within the European Union for the restructuring of the energy system have a direct impact on the further development of the country. In the medium term, all EU measures to reduce CO₂ emissions will be applied in North Macedonia. The corresponding increase in the price of electricity still meets the social boundaries that were described. This is also the biggest challenge for the politics in North Macedonia regarding the electricity market. If in the coming years a price level of around 100 euros per MWh is established on the European electricity market, as is now expected, it would be almost a double increase compared to the level before the corona crisis.

Even the necessary investments in the power plants park, and own coal reserves that are nearing completion, will visibly increase the state electricity producer's (ESM) costs for electricity production in the future. The low-price level for households can only be maintained at the current level with state subsidies, as long as North Macedonia is not able to significantly increase its GDP.

North Macedonia is facing high and, in the meantime, large investments in its energy infrastructure and its future capability. The advantage of the country is the particularly good convenience for photovoltaics and thermal power plants, but also the good connection with the international electricity market through the international transmission networks. The distribution of costs must be socially balanced, but must not be a major cost to the economy, in order to remain attractive as an economic location for investment. Therefore, international investment and support will be needed to address these challenges. For a project of this scale, it would be desirable to have a political consensus among the most important political forces in the country, so that this long-term intention can be implemented, if possible, independently of short-term political confrontations.

SHORT BIOGRAPHY



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Elma Agić Šabeta

DECARBONISATION PROCESS IN THE WESTERN BALKANS

POLITICAL THOUGHT

64



INTRODUCTION

During the winter months, many cities in the Western Balkans, including the capitals, occupy infamous places on world charts that measure air quality. The world ranking of countries with the worst air quality, where 2.5 pm particles are taken as a parameter, in the top 35 countries includes Montenegro (16th), Bosnia and Herzegovina (28th), Serbia (33rd), and North Macedonia (34th). However, Croatia also occupies the infamous 35th place in this table. At the top of the list are countries from Asia, the Middle East, and Africa.

Although the countries from the Western Balkans in southeastern Europe are on their way to membership in the European Union, the governments of the countries from the Western Balkans are doing little to address this issue. Even the international agreements related to decarbonisation signed at the Sofia Summit in November 2020, which were later confirmed at the United Nations Summit in Glasgow, Poland, are not a good enough motivation for them either. With these declarations, the governments of the countries have committed to reduce the use of fossil fuels by a third by 2030, i.e., that they will produce a Green Agenda. They also pledged to achieve climate neutrality by 2050, which implies that by then there will be no net greenhouse gas emissions. What these countries in the region have in common is that they have traditionally relied on electricity production through thermal power plants. Natural conditions allow them to produce an important part of their energy through hydropower plants.

Regarding the publishing of information on air quality, as well as informing the citizens on this topic, there has been progress in the last few years, so that the public and the citizens are aware and familiar with this topic. Unfortunately, even those who should have a good understanding of this topic, and who should introduce measures to improve air quality, often explain that the air quality in this area has always been so.

At the beginning of the corona pandemic, many countries around the world began to develop a concept of their own production of basic foodstuffs, including independence and a high degree of diversification in energy supply. The war in Ukraine has shown once again how important it is to be independent in energy production and to have a high degree of diversification of the energy source.

IMPORTANCE OF ENERGY EFFICIENCY

An important segment of the decarbonisation process is the area of energy efficiency. All Western Balkan countries have a very low level of energy efficiency, so they are estimated

to consume several times more energy than their gross domestic product compared to the European Union average.

In general, the field of energy efficiency is almost completely unknown to these regions. Targeted investment in this context could achieve greater savings and significantly reduce energy consumption. In the end, this would mean more space for exporting the produced energy or achieving a higher level of energy independence.

The European financial institutions have been financing projects in the field of energy efficiency for some time now, so that grants are available for citizens and companies in this segment. However, these are still insignificant funds and smaller projects.

At a time when due to the war in Ukraine there are additional motives for increasing the level of energy efficiency, not much is happening in the Western Balkans in this context. It is difficult to make accurate estimates of how much energy could be saved by investing in energy efficiency projects, but it can be stated with high level of confidence that these are significant amounts. At a time when all European countries are looking for a way to reduce their dependence on Russian gas, the countries of the Western Balkans could achieve enviable effects in the area of increasing energy efficiency only.

WIND AND SOLAR ENERGY POTENTIALS

The countries of the Western Balkans have excellent predispositions in the field of energy production through wind farms. Also, the natural conditions for the construction of solar power plants in Southeast Europe are much more favorable than in most countries of the European Union. Namely, solar panels need sun, but very high temperatures have a negative impact, because they require a cooling system, so they need additional resources for energy production. However, the countries of the Western Balkans are in an embryonic stage of development when it comes to these energy sources.

THE EUROPEAN UNION GREEN DEAL

The European Union is aware that it is not enough to limit its actions in reducing the use of fossil fuels within its borders, but that it is necessary to support other countries in these intentions, especially those who are on the way to becoming members of the European Union. That is why in 2019, the EU launched the European Green Deal. Through this major project, 9 billion euros will be made available to the countries of the Western Balkans for projects in the field of sustainable and inclusive development. In addition



to these funds, 20 billion guarantee funds will be available, which are necessary for the realisation of the project.

THE CONCEPT OF PROSUMER AND CIVIC ENERGY

The concept of electricity generation in the past was based on large state-owned enterprises or large private enterprises, which produced energy with thermal power plants and hydropower plants, thus distributing electricity. In the field of hydropower plants, there is room for investments by foreign investors in the case of smaller projects. However, these are essentially grand, large-scale projects. The field of renewable energy sources, which means, above all, solar power plants and wind power plants offer many more opportunities for the involvement of citizens and all levels of society in energy production.

A particularly interesting concept that has yet to be developed in the countries of the Western Balkans is the so called prosumer concept that presents the involvement of the entities that produce and consume part of the electricity for their own needs, i.e., consumers that can dramatically change the nature of the power system. They can also generate electricity for other users.

The estimation is that the prosumer has installed some of the technologies for renewable energy sources, and most often it is a solar photovoltaic power plant on the roof of the building whose production is used for own needs. The European Union's 2019 energy regulations package for the transition to clean energy (Clean Energy for all Europeans), which has become mandatory for the Western Balkans since the end of 2021, encourages consumers to actively participate in the electricity market with their own production.

The concept of prosumer has a great potential in a socially just, efficient, and economically viable way to contribute to reducing pollution, i.e., to provide a healthy and cleaner environment. This concept also has a positive effect on the technical aspect of the operation of the power system, because the produced energy is consumed at the place of creation, so in most cases, no expansion of the public network is required. Furthermore, in this way the consumers ensure their energy independence and are less exposed to risks from the electricity market.

In some countries of the Western Balkans, no regulation has yet been adopted that recognises the concept of prosumer.

CARBON BORDER ADJUSTMENT MECHANISM

The concept of introducing a tax on coal emissions (CO₂) will greatly affect the countries of the Western Balkans. It is expected that at the beginning of 2026, the so-called Carbon Border Adjustment Mechanism (CBAM) will enter into force, which will imply the payment of compensation for the products that are exported. Many Western Balkan countries export electricity. However, this provision will not be limited to the production of electricity, but also to additional products. The purpose of the tax is to equalize domestic producers in the EU in relation to foreign producers. This provision will be especially applicable to iron and steel, cement, fertilizers, aluminum, as well as electricity produced on the basis of fossil fuels. The European Commission has the discretion to expand the list of products subject to this mechanism (CBAM). From 2023, the European Commission will start collecting data on coal emissions from exports. The table below shows the importance that applies only to electricity exports to the Western Balkan countries.

Table 1. Electricity exports from the Western Balkans to 27 EU countries
(in millions of euros)

	2017.	2018.	2019.	2020.
Bosnia and Herzegovina	229	299	242	210
Serbia	530	548	479	413
North Macedonia	50	95	115	109
Montenegro	-	-	-	26
Albania	16	44	62	50
Total	825	986	898	808
Total imports of 27 EU member states	2,789	3,651	3,234	2,444
Export to regions/import to EU	29.6%	27%	27%	33.1%

Source: KPMG, 2022

FINANCIAL SOURCES

The decarbonisation process requires large financial resources. The main areas for investment are the very stations for renewable energy generation, the infrastructure, and the electricity networks that will transport the produced energy where it is needed. In addition, significant resources are needed to support the transition of the region that has relied on mining resulting in energy generated through thermal power plants. In this context, new jobs should be provided for miners, and the transition should be made as less painful as possible.

It is clear that financial resources must come from different sources, such as companies' investments, citizens' savings, public-private partnerships, international borrowing, and international investments.

In the context of raising funds for renewable energy projects, Serbia has been the most advanced so far. Serbia is the first country that is not a member of the European Union and has issued the so-called Green bonds¹, using the Eurobond market.

REGULATORY FRAMEWORK

A necessary condition for the development of renewable energy sources, although not sufficient, are the natural resources. Legislation is a very important precondition for encouraging the development of renewable energy sources. The concept of a prosumer is not feasible if there is no legislation that allows the sale of excess energy produced. In addition, in the initial stage of development, an incentive system is needed. Feed-in-tariffs are guaranteed prices for producers of energy from renewable sources, which the state, i.e., the electricity distribution, through contracts, guarantees to energy producers for a longer period. It is usually a period of 10-20 years. The price of electricity guaranteed in this way is usually higher than the standard prices, so in this way, small energy producers are encouraged.

An important segment of the regulatory framework are construction permits and complexity of bureaucracy to be fulfilled, for larger and smaller investments in energy projects.

CONCLUSION

It is evident that the countries of the Western Balkans are in an embryonic stage of development when it comes to renewable energy sources in the concept of energy efficiency. This refers to the regulatory framework, the activities carried out by the governments of the countries to implement the obligations undertaken by the international declarations within the set deadline. On the other hand, awareness of air quality and the need to achieve a higher level of energy independence have never been higher. The European Union Green Deal, which will make 9 billion euros available to the countries of the Western Balkans, is an important lever in mobilizing domestic and international resources in the field of decarbonisation. But a successful energy transition will require investment and a common approach to all sections of society, including citizens, companies, the NGO sector, public-private partnerships, and international

¹ Bonds issued by a country abroad in a currency other than its local currency.

investors. The potentials in the field of sun-based and wind-based production are huge, they represent a great economic chance for future development, where new jobs will be created. Successful implementation of the project requires legislation and a regulatory framework that regulates the concept of prosumers. Thereby, the complexity of the initiation of the procedure and the subsidies system have an important role in the implementation of the project for renewable energy choices.

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