
THE IMPACT OF THE ENERGY CRISIS ON THE ECONOMIC PARAMETERS OF THE WESTERN BALKANS

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Abstract: World fuel crisis, rising prices, global warming and climate changes are influencing all of the world economies. Small countries like in the Western Balkans that have open economies are also feeling the impacts of these events. The energy crisis has reflected all the economic parameters in all the economies worldwide. Evidently that as soon as someone thinks that one crisis is overcome, there is another wave that strikes even harder and makes the whole situation even worse than expected. At first there was the COVID-19 pandemic, where the economy had the first touch of the bottom, then the Russian invasion over Ukraine that grew in warzone and the economy of the Western Balkans countries hit the bottom again. As it was not enough, the prices of emergencies are sky hi and the economies of these countries have to take even that burden and again hit the bottom as hard as it can hit.

Keywords: world fuel crisis, rising prices, energy crisis, economic parameters in wb countries restriction on global sources of food gas oil energy

INTRODUCTION

The energy issue is seriously constraining any economy in the globe and has become a major bottleneck in the availability of energy resources needed for typical GDP growth. Due to rising energy prices, increased climate change, and worries of a global economic downturn, these concerns are at an all-time high. Energy is a fundamental resource for all economic activity and a necessary input that adds value along the whole economic value chain.

The majority of European nations have adopted a number of actions to safeguard their economies and socially vulnerable individuals from the crisis' impacts. Subsidies and social protection programs for groups of people who are vulnerable to energy poverty, support for SMEs (such as in Romania and the Czech Republic), etc., are some of these approaches. For instance, Slovenia has implemented a support program that includes a temporary reduction in the excise taxes on fuel, heating oil, and gas, as well as an income of 150 euros for those who receive social assistance, child support, or workers with an annual income of less than 680 euros, and 200 euros for families with four or more children.

The six countries of the Western Balkans were unprepared for this storm and vulnerable to changes in electricity prices. Most nations rely on fossil fuels to produce their energy, and the majority of their cities are among the most polluted in Europe, which suggests that they are falling short of their decarbonization targets. Serbia and North Macedonia are increasing their coal production in response to the present energy crisis, which is further delaying the energy transition. Albania, Kosovo, and North Macedonia are the WB member nations most impacted by the high price rises.

While Albania and Serbia have not yet been impacted, they will be in the coming months. BiH and Montenegro are still mostly unscathed by the price increase. The two nations most impacted by seasonal variations that jeopardize their ability to produce electricity are still North Macedonia and Albania.

MATERIALS AND METHODS

This study uses a cross-country comparative approach and examines the following factors: Capital adequacy, the financial condition and efficiency of the banking sector in the Western Balkans during the pre-crisis and crisis periods.

RESULTS AND DISCUSSION

Major Factors of the Energy Crisis for WB countries

Post COVID period of recovery

As a result of the lockdown and anti-COVID efforts implemented during the pandemic, need, expenditure, and supply all significantly dropped. After a while, lockdown procedures became simpler, which in turn increased economic activity while also making it difficult for supply to keep up with a rapid increase in demand. Although the industry of renewable energies has indeed been expanding during the epidemic, the pandemic had also hindered its development in many countries.

Reduced Energy Resources from Fossil Fuels

Reduced fossil - based energy reserves have worsened Europe's energy problem, primarily because fossil fuels have a reduced production capacity. Fossil fuels, natural gas, oil, and other non-renewables have all been on the decline since 2010 (-16.5% for fossil fuels, -21.2% for natural gas, and -5.2% for oil and petroleum products). Natural gas has decreased by over 63% since 2010, while fossil fuels have decreased by 43%. A good trend has been seen in both non-renewable trash (1.6%) and renewable energy (+3.0%). The energy shift did not materialize quickly enough, despite EU agreements.

The Russian invasion of Ukraine

The escalating Russian invasion of Ukraine has made the world energy problem even worse. The attack caused oil and gas prices to reach previously unheard-of heights, forcing several nations to reconsider their energy mix. The greatest producer and exporter of oil and gas in the world, Russia supplied Europe with 27% of its oil and 40% of its natural gas in 2021. Along with many other nations, the EU has put stringent economic sanctions on Russia and made a commitment to gradually weaning itself off of Russian oil and gas. The US has imposed a total embargo on Russian natural gas and oil. As a result, numerous energy-related products were in limited supply, and prices rose.

The perspective of the Western Balkans Countries

In terms of the effects of the energy crisis and the war in Ukraine, the Western Balkans are a region that is particularly vulnerable. The majority of Western Balkans countries rely on the use of fossil fuels, notably brown coal, to meet their energy demands; but, in comparison to other European regions, they are far less dependent on Russian gas as a primary source of energy. It should be remembered that 89 percent of Serbia, 100 percent of BiH, and 100 percent of North Macedonia depend entirely on Russian gas, according to ACER's 2020 data. Serbia, Kosovo, Montenegro, North Macedonia, and Bosnia and Herzegovina are nations that rely extensively on coal for the production of power.

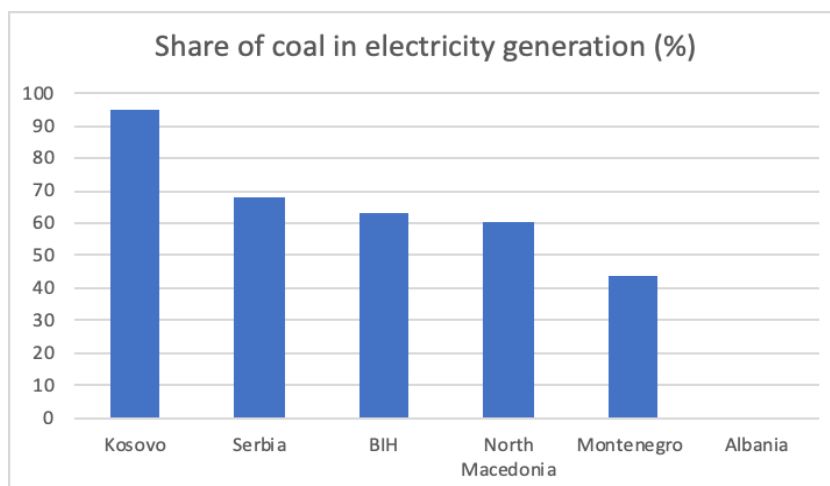


Fig 1. WB coal's role in the production of electricity

Around 44% of the power produced in Montenegro, 60% in North Macedonia, 63% in Bosnia and Herzegovina, 68% in Serbia, and 95% in Kosovo is produced using coal. The majority of Albania's electricity comes from hydroelectric plants, with very little coming from solar energy.

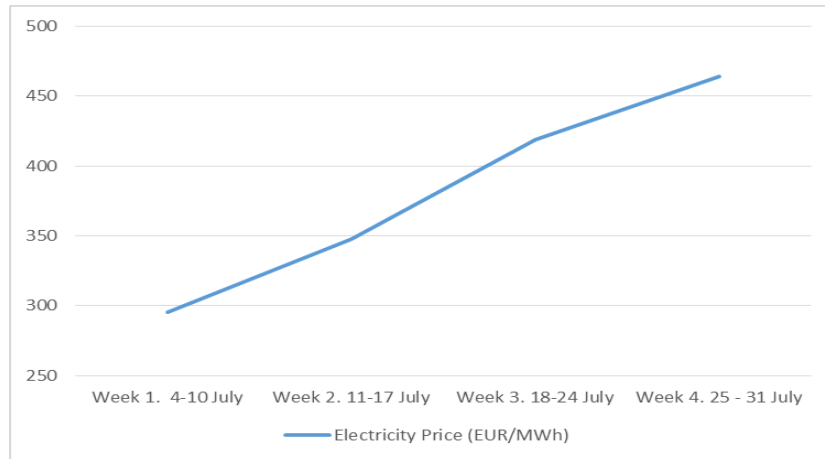


Fig 2. Average Electricity Price for July 2022 for WB

The gas pipeline does not link to Albania, despite the fact that gas travels there via TAP. The cities in the area continue to be among the most contaminated in Europe, and it is predicted that coal-fired power plants would cost the public health between 6 and 12.1 billion euros by 2020. Both WB and EU residents pay for this expense through rising national healthcare budgets and individual treatment expenses. The energy crisis has made it clear that the WB is more susceptible to changes in the electrical markets. The power exchange's energy prices are rising at all-time highs (Fig. 1), breaking previous records for the area.

It is anticipated that the prices throughout the winter will reach new record highs given the trends and production-limiting constraints in the European continent.

In addition, for at least the following two to three years until markets stabilize, blackouts, declining GDP, and rising inflation would become the new normal.

In order to avoid blackouts and excessive expenses to the GDP of their respective countries, licensed, mostly state-run businesses, such as TSOs, have been forced to import energy from other countries, especially during the winter season.

The authorities of the WB states adopted a variety of measures, from government subsidies to blackouts, depending on the needs of their respective nations, to lessen the harmful consequences of the crisis.

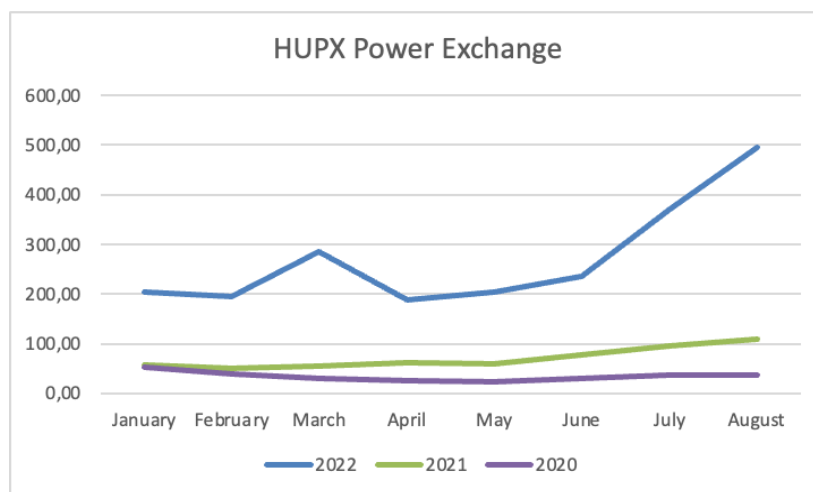


Fig 3. Monthly Electricity Price per MWh for 2020, 2021, 2022 in HUPX Power Exchange for Western Balkans

Comparative Analysis of Economic Impact and Measures

Impact on the Environment

The WB countries are severely hit by the energy and economic crises as well as the conflict in Ukraine. They are somewhat committed to reducing carbon emissions and working toward climate goals, but they also struggle to preserve energy security because of their reliance on Russian gas. In reaction to the crisis, coal power output is increasing in Serbia and North Macedonia.

The EU made it clear that it intends to accelerate (rather than slow down) the energy transition, particularly in terms of building up renewable energy capacities. WB nations ought to follow suit. Since the EU market and WB are intertwined, national plans and strategies for the region must take EU plans into account. The WB economies, which are tightly linked to the European Union, would be negatively impacted by the EU's environmental measures, such as the implementation of a Carbon Border Adjustment Mechanism, if these goals were not met. With the exception of North Macedonia, which has set a 2030 deadline for the phase-out of coal and lists a fair transition program as one of the policy measures in its draft NECP, none of the nations in the region have yet enacted long-term decarbonization plans or just energy transition plans.

Authorities in the EU and Western Balkans might capitalize on the impetus created by the current energy crisis and the conflict in Ukraine to speed up the energy transition, maintain the trajectory of emissions, and reduce the 2030 emissions gap.

Impact on the Economy: State Energetic Profiles

Albania

- 99% of Albania's installed electricity generation is hydroelectric. The entire hydropower capacity is 2,496 MW, of which 98 MW is thermal capacity that is based on oil and is not in operation, and about 20 MW is solar capacity.
- Relatively unexplored and abundant resources include solar electricity, which is abundant in Albania because of its geographic location, and wind power, which has not yet been utilized.
- Net electricity importer; heavily reliant on hydrological cycles. Production in 2020 was 5,313 GWh, while consumption was 7,589 GWh.

Measures and Impact in Albania:

- In October 2021, a state of emergency regarding the energy crisis and energy supplies was declared due to the worrying upward trend in electricity costs in global markets. The government's declaration of a state of emergency permits using financial and administrative tools to cope with the situation and stop it from getting worse.
- For 2021–2022, 200 million euros have been set aside to mitigate the impact of the energy crisis.
- Price hikes for customers who use electricity beyond 700 kW/h are being considered.

Bosnia and Herzegovina (BiH)

- About 60%–40% of the electricity produced in BiH comes from thermal sources. 2,156 MW of the 4,529 MW total output capacity is used to generate thermal power. 87 MW of that comes from wind, while 35 MW is from solar;
- Unrealized vast potential for wind and solar energy generation;
- Electricity production in 2020 was 15,391 GWh, while consumption was 11,330 GWh, making it a net exporter of electricity.

Measures and Impact in Bosnia and Herzegovina

- A modification to the Electricity Law in BiH was implemented in 2021, limiting price increases for eligible users to a maximum of 20%.
- In 2022, RS issued a resolution that permits the provision of electricity to all schools.
- Network tariff increases Consumers whose needs are met by the market are affected by the price increase.

Kosovo

- Kosovo's electrical mix is 95% made up of thermal power facilities. There are 1,110 MW in total production capacity, 960 MW of which are thermal-based. The combined wind and solar energy capacity is 34 MW (data for 2020).
- Large-scale solar and wind energy potential, the most of which is unrealized (IRENA, 2020).
- In 2021, importers of electricity produced 6,301 GWh, whereas consumption was 5,771 GWh, particularly during peak hours and the winter season.

Measures and Impact in Kosovo

- In December 2021, the Kosovo government proclaimed a state of emergency and implemented a 120-million-euro energy subsidy.
- The tariff structure has changed, with prices going up for users who use more beyond 800 kWh per month.
- Revenue growth for USS (almost 20% taking the subsidies into account).
- In December 2021, there will be daily two-hour power disruptions. In August 2022, this measure was reinstated.
- 20 million EUR to import electricity.

Montenegro

- About half of Montenegro's electricity comes from thermal and hydropower, respectively. There are 921 MW of total production capacity, of which 225 MW are thermal-based. 118 MW of wind power is available.
- High potential for producing solar and wind energy. Unused solar energy represents unrealized potential (IRENA, 2020).
- electricity importer during periods of peak demand Production of electricity in 2020 was 3,225 GWh, while consumption was 3,311 GWh.

Measures and Impact in Montenegro

- It's anticipated that network tariffs would rise.
- There will likely be a rise in network tariffs.

Republic of North Macedonia

- Thermal production is primarily favored in the electricity mix. It has a sizable fleet of hydroelectric power plants. 1,321 MW of the 2,101 MW total production capacity are used for thermal, coal, oil, and gas energy. It has 24 MW of solar power, 37 MW of wind power, and 7 MW of biogas power.
- Considerable wind and solar potential that hasn't been fully utilized (IRENA, 2020).
- A net electricity importer. In 2020, there were 5,127 GWh of electrical energy produced, compared to 7,748 GWh of energy used.

Measures and Impact in the Republic of North Macedonia

- The North Macedonian government announced a state of emergency, provided 255 million euros in producer and TSO support, and allocated roughly 10 million euros for additional petroleum supplies from TPP Negotino (oil power plant).
- Changes to the VAT Law that took effect in June 2022 lowered the tax on domestic electricity supply from 18% to 5%.
- After initially freezing commodity prices until December, the government implemented a margin cap.
- Fuel excise taxes will be reduced by 20%, while pensioners receiving below-average pensions would receive a one-time 50 EUR support.

Serbia

- Thermal units are the foundation of the main portion of power production. Serbia has a total installed capacity of 7,927 MW, of which 4,412 MW is thermal, including gas, and it has the greatest production fleet. There are 398 MW of wind power, 30 MW of biogas/biomass, and 11 MW of solar electricity available.
- The nation possesses a sizable and advantageous wind power potential as well as a sizable but underutilized solar power potential (IRENA, 2020).
- It exports power on a net basis. 2020 saw a production of 35,626 GWh of energy, compared to a total consumption of 32,318 GWh.

Measures and Impact in Serbia

- It exports more electricity than it imports. In 2020, a total of 32,318 GWh of energy was consumed, compared to a production level of 35,626 GWh.
- Network tariff increases are expected.
- To assist 200,000 households in paying their electricity bills, the government issued a directive on Energy Vulnerable Customers. 1,500 homes may apply for gas subsidies, and 50,000 may do so for assistance with heating bills.

- The Serbian Ministry of Mining and Energy issued a request for proposals to install solar panels and replace woodwork by the beginning of 2022. By the end of 2022, the state will have spent 230 million euros on improving energy efficiency.
- Additional price-freezing measures for milk, pork, flour, sugar, sunflower oil, and sugar were introduced.

Comparative Analysis of Economic Impact and Measures

The Western Balkan countries of Albania, Kosovo, and North Macedonia—net importers—are the ones most impacted by the energy crisis. Larger participation has come from nations that rely on the production of power from sources like natural gas or oil. The high import price translates into higher costs for the economies of the net importing countries, which exacerbates issues with public spending, debt, and inflation. On the other side, under this scenario, net exporting nations will profit greatly. Regulated consumers will feel the increasing burden of high pricing. Additionally, suppliers are instantly harmed because they must sell at set prices while making spot market purchases.

Companies engaged in the open market are particularly affected since they have trouble keeping up with peak energy prices. As a result, they are compelled to stop operations and production and fire employees. Some of the plants in the WB6 have demonstrated this.

It has been observed that the relevant governments take more efforts to safeguard their economies and societies from adverse effects resulting from higher costs the more electricity the country imports. Given that not all of the Western Balkan six twenty-four countries are equally impacted by the energy crisis, the countries adopted a variety of remedies, from subsidies to restrictions on electricity rates.

With the exception of Bosnia and Herzegovina, Serbia, and to a lesser extent, Montenegro, network operators and state budgets in all other countries have suffered significant financial losses as a result of high import prices. In Serbia and BiH, no changes in the price of household electricity were observed during the analysis reporting period. In contrast, although price rises are probable, household customers in Albania have not yet been impacted. There are hints that Serbia may also change its electricity rates.

Type of Electricity Production

The rate revision in Kosovo affects residential consumers because those who use more beyond 800 kWh per month must pay extra. Less-consumptive households are shielded from the hike until the new revision of tariffs, which is anticipated for March 2023. The energy regulator in North Macedonia decided to raise the price of electricity by an average of 7.4% as a result of issues with electricity generation and the extremely high import price for electricity. To reduce the demand for electricity, block tariffs will be used as the structure. It should be remembered that North Macedonia is raising its electricity prices for the second time. This demonstrates North Macedonia's vulnerability to imports of expensive electricity.



Figure 4. WB energy production, vulnerability, import/export, and profile

In contrast to BiH and Montenegro, where there were no noticeable changes in energy pricing, industrial consumers in Albania, Kosovo, North Macedonia, and Serbia are immediately impacted by the price rises. This is related to the fact that the industrial customers in all other nations—aside from BiH and Montenegro—operate in a free, liberalized market, rendering them immediately susceptible to changes in prices. Some of these consumers are putting pressure on the governments to allow them back onto the regulated market because doing so would prevent economic activity, like in North Macedonia.

All of the World Bank's nations are affected directly or indirectly by seasonal variations in the weather and hydrological cycles. Albania is most impacted, though, as the majority of its electricity comes from hydropower. Despite the fact that other nations have more varied energy production capabilities, they are less affected by weather cycles. Due to their dependence on electrical imports, North Macedonia and Albania are particularly vulnerable, although Kosovo is least impacted as compared to other WB nations. Contrarily, BiH, Serbia, and Montenegro are far less impacted by high import costs and impacted by global volatility in the electrical markets.

As a domestic component, seasonal fluctuations in weather patterns play a significant role in the worsening of the energy crisis since they reduce the capacity of the countries to produce power, forcing them to import electricity to satisfy domestic demand.

Because Serbia and Bosnia and Herzegovina use natural gas for electricity generation and energy production, natural gas fluctuations there have a disproportionately large impact on North Macedonia. Compared to North Macedonia, Bosnia and Herzegovina and Serbia are less impacted by price increases on the global gas markets because the latter uses natural gas primarily for electricity production rather than just space heating.

Type of electricity production

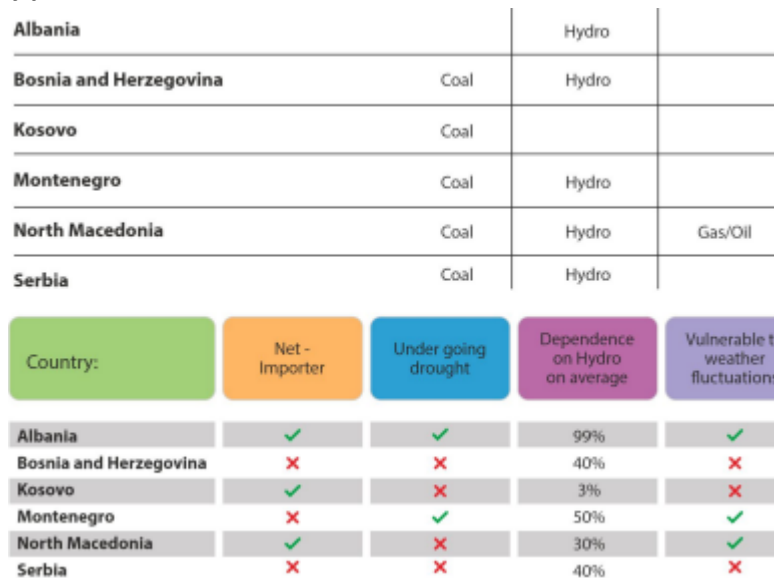


Figure 5. WB6 weather fluctuations ad vulnerability

Social impact

Since expenses are mostly paid by residents and businesses, an increase in prices has an effect on their well-being. The implications of the energy crisis affect every element of society, from increased inequality and lower purchasing power to higher inflation and slower energy transition that has serious health consequences.

The energy crisis has boosted household spending on goods and services, including energy. According to the Household Expenditure Survey and the World Bank Study on Energy Crisis in 2022, the average family in WB6 spends about 7–10% of their overall budget on energy. This disadvantages low-income households, those experiencing energy poverty, and women disproportionately.

CONCLUSION

A worldwide energy crisis that is unprecedented and multifaceted has been brought on by a convergence of connected forces. Energy consumption increased significantly as a result of the post-pandemic rebound, which also hampered the development of renewable energy sources. This equation was further complicated by Europe's declining fossil fuel production capacity. A lack of energy supplies caused by the Russian invasion of Ukraine exacerbated the problem and created the perfect storm. In addition, the unusual weather patterns marked by a hot summer and a frigid winter increased energy usage.

The energy crisis is here to stay, as seen by the recent price shocks, which provide us a taste of the future. There should be long-term planning and strategies in place for a quick transition to renewable energy sources. The Western Balkans are currently facing a challenging position as a result of the slow introduction of new RES capacity, the failure to create an environment that encourages RES investors to undertake projects, and the slow diversification of energy resources.

Returning to coal-fired power plants is not a practical solution to the situation, despite its appeal as a choice for a reliable source of electricity. Long-term reliance on fossil fuels will keep the area vulnerable to supply-demand mismatches that could lead to crises in the future. It would obstruct the transition to clean energy, further damaging the WB countries' economies, productivity, and well-being.

REFERENCES

- World bank publications/ Spring 2023 available at: https://issuu.com/world.bank.publications/docs/spring_2023_catalog_pdf_version
- World Health Organization, Tracking SDG7: The Energy Progress Report. 30 May 2022. Available at: <https://www.who.int/publications/m/item/tracking-sdg7--the-energy-progressreport-2022>
- Eurostat, Energy statistics - an overview. February 2022
- BBC News, Russia sanctions: How can the world cope without its oil and gas? September 2022. Available at: <https://www.intellinews.com/north-macedonia-bosnia-andmoldova-most-dependent-on-russian-gas-234239/>
- BNE IntelliNews, North Macedonia, Bosnia and Moldova most dependent on Russian gas. February 2022. Available at: <https://www.intellinews.com/north-macedonia-bosnia-andmoldova-most-dependent-on-russian-gas-234239/>
- CREA & CEE Bankwatch Network. Comply or Close, 2021 round-up of legal breaches and health impacts. September 2021. Available at: <https://energyandleanair.org/wp/wp-content/uploads/2021/09/En-COMPLY-OR-CLOSE-How-Western-Balkans-coal-plants-breach-air-pollution-laws-and-cause-deaths>
- Hungarian Power Exchange. September 2022. Accessible on: <https://hupx.hu/en/>
- Reuters, Balkans turns to coal as energy crisis trumps climate commitments. 19 April 2022. Available at: <https://www.reuters.com/article/north-macedonia-coal-idCAL5N2WH1FU>
- EURACTIV, EU tables €300bn plan to ditch Russian fossil fuels, speed up green transition. 18 May 2022. Retrieved from: <https://www.euractiv.com/section/energy/news/eu-tables-e300bnplan-to-ditch-russian-fossil-fuels-speed-up-green-transition/>
- Climate Action Tracker, Global reaction to energy crisis risks zero carbon transition. June 2022. Available at: https://climateactiontracker.org/documents/1055/CAT_2022-06-08_Briefing_EnergyCrisisReaction.pdf
- Dena, UNECE Renewable Energy Uptake: Development of Renewable Energy in Albania, June 2021. Retrieved from: https://unece.org/sites/default/files/2021-07/UNECERE_Uptake_Factsheet_Albania.pdf
- Energy Community Data, 2020. Available at: <https://www.energy-community.org/>
- Energy Community, "WB electricity markets", 2022. Available at: <https://www.energycommunity.org/>
- Investigative Network Albania, Basti i humbur për energjinë elektrike, si u thanë HEC-et e Drinit me sytë nga qielli. 24 August 2022. Available at: <https://ina.media/?p=6259>
- IRENA, Renewable energy prospects for Central and South-Eastern Europe Energy, 2020. Retrieved from: https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Oct/IRENA_REmap_CESEC_2020.pdf
- Energy Community, "WB electricity markets", 2022. Available at: <https://www.energycommunity.org/>
- Republic of North Macedonia, Ministry of Finances. Energy Crisis, Price Increase and Government Policies: Timing, Scope and Targeting. 13 March 2022. Retrieved from: <https://finance.gov.mk/2022/03/13/energy-crisis-price-increase-and-government-policies-timingscope-and-targeting/?lang=en>
- Balkan Green Energy News, Serbia to protect vulnerable households from jump in energy prices. 10 May 2022. Retrieved from: <https://balkangreenenergynews.com/serbia-to-protectvulnerable-households-from-jump-in-energy-prices/>
- Energetski Portal, Energy Crisis and Changes in Serbia. 13 July 2022. Available at: <https://www.energetskiportal.rs/en/energy-crisis-and-changes-in-serbia>
- Energy Community, "WB electricity markets", 2022. Available at: <https://www.energycommunity.org/>
- News, Serbia to raise power prices for households by 6.5% from Sept 1. 28 July 2022. Retrieved from: [https://seenews.com/news/serbia-to-raise-power-prices-for-households-by-65-from-sept-1-793122#:~:text=BELGRADE%20\(Serbia\)%2C%20July%2028,energy%20regulator%20said%20on%20Thursday](https://seenews.com/news/serbia-to-raise-power-prices-for-households-by-65-from-sept-1-793122#:~:text=BELGRADE%20(Serbia)%2C%20July%2028,energy%20regulator%20said%20on%20Thursday)
- N. Macedonia hikes electricity prices for households. 30 June 2022. Available at: [https://seenews.com/news/n-macedonia-hikes-electricity-prices-for-households789991#:~:text=Macedonia\)%2C%20June%2030%20\(SeeNews,average%20for%2](https://seenews.com/news/n-macedonia-hikes-electricity-prices-for-households789991#:~:text=Macedonia)%2C%20June%2030%20(SeeNews,average%20for%2)

098.8%25%2 0of%20consumersWorld Bank. Steering Through Crises, Western Balkans Regular
Economic Report, No.21, 2022.
<https://openknowledge.worldbank.org/bitstream/handle/10986/37368/P17720607706c30e90841607b7d53ee8106.pdf>

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