

How can the Western Balkans electricity mix be made sustainable?

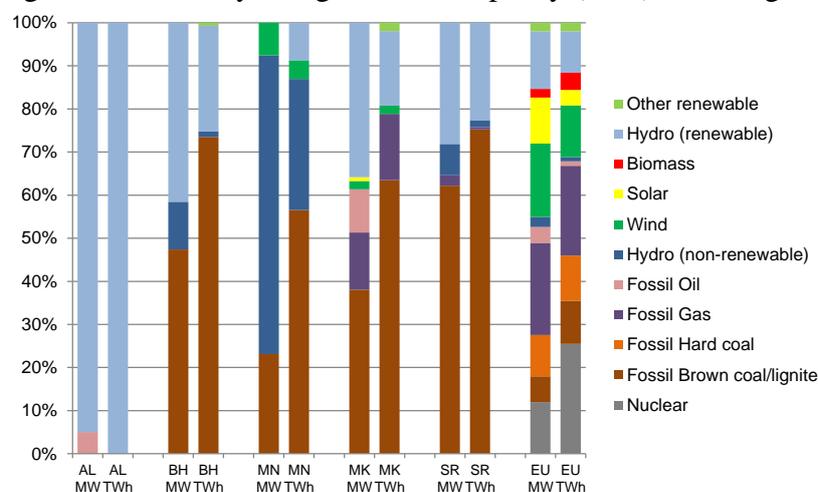
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Power generation in the Western Balkans is at a critical juncture. Much of the current capacity is based on coal-fired thermal power plants, but many of these are old and coming to the end of their useful life. The presence of non-hydro renewables such as solar and wind in the energy mix is almost negligible. New capacity is being developed in all countries but will it be sufficient to meet the needs of businesses and consumers, and can it be done without adding to pollution levels and carbon emissions? We argue that, for this to happen, Western Balkan countries will need to promote the widespread use of competitively procured renewables, integrate and harmonise their energy markets between themselves and with EU neighbours, and develop regional gas markets.

Power generation in the Western Balkans is at a critical juncture. All six countries in the region – Albania, Bosnia and Herzegovina, FYR Macedonia, Kosovo, Montenegro, and Serbia – face the challenge of building new capacity to replace the existing and serve growing demand while meeting targets on carbon reduction and climate change mitigation. Addressing this challenge successfully will require a new strategy, focusing on renewable sources of energy, decarbonisation, combined with increased internal and external regional cooperation. Natural gas, once more widely available, will also play an important role on this energy transition.

Current installed electrical capacity in the region is about 18,000 MW, almost evenly divided between hydropower and thermal power plants (TPPs), the latter being mostly coal-fired. The mix differs significantly across countries. Only Albania has no reliance on coal, with generation coming exclusively from hydro. In contrast, half of installed capacity in Bosnia and Herzegovina is based on coal-fired power plants, rising to almost two-thirds in Serbia and almost 100 per cent in Kosovo. Coal-fired plants play a significant role in power systems of FYR Macedonia and Montenegro as well. Due to its high capacity factor, the importance of coal is even higher when it comes to power generation (see Figure 1). In comparison, the role of coal in the EU is much smaller, as the energy mix is more diversified.

Figure 1: Electricity net generation capacity (MW) and net generation (TWh), % of total



Source: European Network of Transmission System Operators for Electricity (entsoe): Statistical Factsheet 2017, Authors' calculations

¹ This piece has benefitted from the significant contributions of Peter Sanfey from EPG, and Adil Hanif and Harry Boyd-Carpenter from the Energy Business Group.

This is not surprising given the substantial reserves of coal in the region, but it is a major problem because most of it is lignite, which is the most polluting kind of coal. Despite the well-known problems of lignite, new coal-based plants are being planned across the region to replace obsolete plants. Although there was only one new coal-TPP built in the recent years, the Stanari plant in BiH, a number of new coal-based TPPs in the pipeline or being mooted. New coal-fired units planned in BiH will, if built, have an installed capacity of almost 1,700 MW which is almost equivalent to the current coal-based TPP capacity in the country. These include: Tuzla unit 7 (450 MW), Banovici (300 MW), Ugljevik III (600 MW) and Kakanj 8 (300 MW). In Kosovo, the government has signed a contract with power generator ContourGlobal to build a new 500 MW coal-fired power plant near the country's capital, Pristina, with operations expected to begin by 2023. There are also a few TPPs in the pipeline in Serbia, such as Kostolac C of 350 MW as well as in Montenegro (Pljevlja II, 300 MW). It remains to be seen how many of these plants will actually move beyond the headlines and come to fruition, but the fact that this seems to be the main direction of travel for much of the region is a deep concern.

Many of the proposed new coal-based projects have been criticised by environmental groups. They argue that the feasibility studies for these new plants do not fully price the costs of CO₂ and other air pollutant emissions. For example, the Health and Environment Alliance (HEAL) has recently reported that annual health costs in the Western Balkans due to polluted air from existing coal-fired power plants is up to €8.5 billion, or ca. 10 per cent of the region's annual GDP.² According to the report, this cost is directly related to air pollution from coal power stations, which causes respiratory and cardiovascular hospital admissions, chronic bronchitis and respiratory problems, and leads to the need for medication, and days of restricted activity due to ill-health, including lost working days.

Current plans are also potentially problematic from the perspective of climate change. All Western Balkans countries (except Kosovo, which is not a recognised UN member) have signed the Paris Agreement, thus committing to lower carbon emissions. At the moment, the amount of carbon that is emitted into the atmosphere, adjusted for the size of the economy (measured through CO₂/GDP at PPP), is up to three times the EU average. As all Western Balkans countries, except Albania, are currently constructing or planning to construct coal-based TPPs, the key question is what this would mean for the future carbon emissions. A related issue is how much of this new capacity will end up replacing the existing capacity, which is in many cases already fully depreciated and has been for many years ready to be retired.

Air quality might be improved if old plants are upgraded or if the new plants are more efficient and environmentally-friendly than the old ones. Among the 10 most polluting coal power plants in Europe, seven are from the Western Balkans, including Serbia's Kolubara, Kostolac B and Nikola Tesla A, FYR Macedonia's Bitola, and Kosovo's A and B. But even if the upgraded or new plants meet EU Best Available Technology (BAT) standards, the cost of emitting each tonne of carbon is expected to rise as the EU tightens its emissions-trading scheme, making the continued use of high emitting power sources uneconomical. This could lead to the disuse of these assets, effectively stranding these big investments, because it will be cheaper to use alternative energy sources. These projects would effectively lock-in assets that may incur significant economic and health costs on current and future generations, given that the average life of coal power plants is 40-50 years.

² <https://www.env-health.org/wp-content/uploads/2018/06/Boosting-health-by-improving-air-quality-in-the-Balkans.pdf>

So what is to be done? In our view, there is an opportunity to move decisively towards a lower carbon route, and significantly increase the use of renewable energy sources. This would also be in line with the region's EU aspirations. EU countries recently agreed that each member state must get one-third of all its energy from renewable sources by 2030. This binding goal is significantly higher than the current share of electricity from the renewables in all Western Balkan countries, except for Albania.

One possibility is to develop further the region's hydropower potential. According to the Regional strategy for sustainable hydropower in the Western Balkans,³ from August 2018, the installed capacity of the recommended projects (only seven), assessed against a number of criteria including, environmental, technical and financial, amount to ca. 1,000MW (mostly in Montenegro, BiH and Albania). But the potential for hydro to "solve" the region's energy problems should not be overestimated. Furthermore, this source of energy is subject to major climate variation. Albania's case illustrates this, as the country suffers from seasonal fluctuations in water flows, meaning that it is often unable to meet electricity demand. During shortfalls it has to turn to importing power generated by coal power plants from neighbouring countries.

Perhaps the most promising opportunity lying ahead is regarding other renewable energy sources, such as wind, solar, and sustainable biomass. Their technology related costs have come down dramatically and they can now be present as an important low cost alternative to more traditional sources of energy. Not only are there untapped opportunities in this regard in the region, due to windy locations, sunny days and, in some countries, a large agriculture (and forestry) sector, but there is also increasing interest from foreign investors and financiers in renewable energy. The 72 MW Krnovo wind farm in Montenegro, co-funded by the EBRD, German development bank, KfW, and French development agency, Proparco, is a good example. This is a landmark project for Montenegro's energy sector, as it is the first wind power plant in the country, and as such it serves as a catalyst for commercial banks to finance similar projects. The 104 MW Kovacica and 158 MW Cibuk wind farms in Serbia, also co-financed by the EBRD, are also good examples of attracting foreign investors in the growing Western Balkans renewable market. While those pioneering projects have been supported through feed-in-tariffs, new renewable capacity is expected to be delivered at significantly lower costs based on competitive procurement process that most of the Western Balkan countries are starting or are planning to adopt (and in which the EBRD is closely involved). Therefore, decarbonisation and promotion of renewable energy under competitive procurement is now the main economically viable proposition in comparison to locking the Western Balkan economies to highly polluting and an increasingly more expensive new coal-based electricity generation.

In parallel, an increased focus on interconnections and regional market integration is vital for long-term sustainability. For historical reasons, power interconnections in the region are relatively good (both within the region, and between the region and neighbouring countries), but they are relatively underutilised, reflecting a mixture of regulatory barriers and energy security concerns. The establishment in 2014 of the EBRD-supported SEE coordinated auction office (CAO), which is responsible for managing cross-border capacity for transparent electricity trading, was a major positive step. Not only does the CAO increase efficiency for energy traders, but it also sends a clear signal to investors that the region is moving in the right direction regarding the common energy market.

Another important new option that will help the Western Balkans transition to lower carbon energy sector is through the use of natural gas. The construction of the Trans-Adriatic

³ <https://www.wbif.eu/content/stream/Sites/website/library/WBEC-REG-ENE-01-Final-Report.pdf>

Pipeline (TAP), which travels through the region and brings in around 10 bcm of gas from Azerbaijan via the Trans-Anatolian Natural Gas (TANAP) pipeline, Greece and Albania and across the Adriatic Sea to Italy, as well as a number of cross-country gas interconnectors that are currently being explored, may open options for a coal-to-gas switch. Construction of the TAP is a prerequisite for the construction of the proposed 5 bcm Ionian Adriatic Pipeline (IAP) from Albania, through Montenegro and Bosnia and Herzegovina, to Croatia, which would bring gas to the Adriatic part of the Western Balkans. To this aim, the TAP pipeline could be upgraded to almost double capacity with compressor stations, which could open up an additional role of gas in the region.

If the region is truly serious about delivering secure and sustainable energy at a lower cost for energy users, while at the same time caring about its climate goals, careful consideration should be given to its energy mix now and into the future. Some combination of the above-mentioned options is likely to provide the Western Balkans region with a secure, affordable and cleaner alternative to coal-based power systems. There are reasons to be optimistic: the falling costs of renewables, the arrival of gas and the increasing cooperation among the countries themselves are all positive signs. As contracting parties to the Energy Community Treaty,⁴ the Western Balkan countries also have obligations to adopt the EU's energy acquis and follow the sector's best practices in policy development and implementation of EU energy guidelines and standards. Nevertheless, major challenges remain, associated with significant domestic coal industries and each country's approach to achieving energy security. This is why the transition to energy decarbonisation is not an easy one. Lastly, it is important to say that all countries can continue to count on strong EBRD support along the way to a sustainable and non-polluting energy mix.

⁴ <https://www.energy-community.org/>