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Comply or Close

Six years of deadly legal breaches by Western Balkan coal plants

2024 update

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Research and writing

Ioana Ciuta, CEE Bankwatch Network

Pippa Gallop, CEE Bankwatch Network

Davor Pehchevski, CEE Bankwatch Network

Acknowledgements

Diana Milev-Čavor, Eco-Team

Elena Nikolovska, Eko-svest

Kristina Dimitrova, CEE Bankwatch Network

Redžib Skomorac, Center for Environment

Hristina Vojvodić, Renewables and Environmental Regulatory Institute (RERI)

Editing

Emily Gray, CEE Bankwatch Network

Cover photo

Front: Kakanj power plant, Bosnia and Herzegovina, Arnika/Martin Plocek

Back: Gacko power plant, Bosnia and Herzegovina, Andrey Ralev

Design

Milan Trivić

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Glossary

CBAM – Carbon Border Adjustment Mechanism. This tool aims to put a fair price on the carbon emitted during the production of goods from certain sectors, including electricity, that are entering the EU, and to encourage cleaner industrial production in non-EU countries. Its transitional phase started in 2023 and charges will be applied on the import of goods into the EU from 1 January 2026.

De-NO_x – Equipment for the reduction of nitrogen oxides emissions

De-SO_x – Desulphurisation equipment

ELV – Emission limit value. This represents the permissible quantity of a substance contained in the waste gases from the combustion plant which may be discharged into the air during a given period; it is calculated in terms of mass per volume of the waste gases expressed in mg/Nm^3.

Energy Community Treaty – A treaty signed in 2005 that entered force in 2006 and aims to extend the EU energy market to its nearest neighbours, by applying EU energy, environment and competition legislation to their energy sectors. The Treaty currently includes the European Union, Albania, Bosnia and Herzegovina, Georgia, Kosovo, Moldova, Montenegro, North Macedonia, Serbia and Ukraine.

EU – European Union

IED – Industrial Emissions Directive – Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control).

LCP – large combustion plant. This is defined as a technical apparatus which is used to oxidise fuel in order to use the heat generated with a rated thermal input of equal to or greater than 50 megawatts (MW). This includes plants such as fossil fuel or biomass-fired power stations and combustion in petroleum refineries.

LCP BREF – Best Available Techniques Reference Document for Large Combustion Plants, the conclusions of which were made legally binding in Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, and – following a legal challenge on procedural grounds – again in Commission Implementing Decision (EU) 2021/2326 of 30 November 2021 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (notified under document C (2021) 8580).

LCPD – Large Combustion Plants Directive – Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants.

MWe – megawatts of electric power – the most common form of expression of a power plant's capacity.

MWth – total rated thermal input of a power plant – the rating used in EU legislation to define different size categories of power plants. In general, it is harder to achieve lower emissions concentrations from smaller power plants, so pollution limits are differentiated by size.

NERP – National Emissions Reduction Plan – a flexible implementation mechanism under the Large Combustion Plants Directive in the Energy Community whereby emissions can gradually be reduced by totalling their combined emissions and ensuring they are lower than the decreasing ceilings set for 2018, 2023, 2026 and 2027.

NO_x – nitrogen oxides

Opt-out – a flexible implementation mechanism under the Large Combustion Plants Directive whereby plants can delay investments in pollution control equipment as long as they limit their operating hours to 20,000 between 1 January 2018 and 31 December 2023. Any plants operating after that have to comply with the rules for emissions from new plants, not existing ones.

PM or **dust** – particulate matter

SO_2 – sulphur dioxide

Executive summary

The end of 2023 marked six years since the deadline passed for power plants in the Western Balkans to meet new air pollution standards. Yet the deadly air pollution from the region's mostly antiquated coal power plants has hardly decreased at all. In fact, in 2023 sulphur dioxide (SO_2) pollution increased compared to 2022, while dust and nitrogen oxides (NO_x) emissions remained at high levels.

In 2023, total SO_2 emissions from plants included in the National Emissions Reduction Plans (NERPs)[1] of Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia were 5.7 times as high as allowed – higher than in 2022 and only slightly lower than the annual emissions from 2018 to 2020, when they were six times as high as allowed.

Dust emissions only decreased slightly in 2023, and were nearly 1.75 times as high as allowed by the countries' NERPs, compared to 1.8 times in 2022. Kosovo, Bosnia and Herzegovina and North Macedonia again greatly exceeded their national ceilings for dust.

Total emissions of nitrogen oxides from NERP plants also amounted to 1.3 times as much as allowed, due to a lack of investments in NO_x reduction and annually decreasing ceilings for NO_x in the NERPs. Kosovo and Bosnia and Herzegovina once again exceeded their ceilings, but this time they were joined by Serbia. Kosovo had the highest exceedance, at 2.73 times as much as its national ceiling.

In 2023, Serbia's NERP coal plants were again the highest SO_2 emitters in absolute terms, with 296,011 tonnes, followed by Bosnia and Herzegovina with 181,807 tonnes. Serbia's NERP plant SO_2 emissions increased compared to 2022, while Bosnia and Herzegovina's stayed almost the same.

Despite having obtained an operating permit for its EUR 85 million de-SO_x unit in November 2021,[2] long-standing offender Ugljevik in Bosnia and Herzegovina emitted the highest absolute amount of SO_2 in 2023 – 97,189 tonnes. This represented an increase compared to the previous year. The operator admits that the de-SO_x is not working mainly because it is an 'economic burden', and also due to a lack of disposal facilities for the gypsum that results from the process.

Although only country-level ceilings are binding, looking at exceedances of the indicative ceilings for individual units indicates where particular action is needed. In 2023, no fewer than four plants exceeded their ceilings for SO_2 emissions by more than 10 times: Ugljevik and Kakanj 7 in Bosnia and Herzegovina, Bitola 1 & 2 in North Macedonia and Kostolac A2 in Serbia.

Kostolac B, one of the highest SO_2 emitters from 2018 to 2020, finally started to decrease its emissions in 2021 during testing of its desulphurisation equipment, but increased them again in 2022 and 2023, emitting nearly 5.8 times as much as allowed in 2023. This is still lower than its emissions from 2018 to 2020, but either the de-SO_x unit is not being used regularly or it is underperforming.

The highest absolute dust emitter in the region in 2023 was Kosova B2 in Kosovo, which emitted 3,798 tonnes – a large increase from 2,517 tonnes in 2022, and 9.2 times as much as allowed under Kosovo's NERP.

The Gacko plant in Bosnia and Herzegovina had the highest relative exceedance for dust, emitting almost 10.7 times as much as allowed, or 3,241 tonnes. This represented a slight decrease compared to 2022, when it emitted 3,649 tonnes. Decreases in dust pollution were reported in late 2023, but came too late to show significant improvements in the emissions data for the year.

[1] As part of their obligations to comply with the Large Combustion Plants Directive under the Energy Community Treaty, four Western Balkan countries – Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia – have drawn up National Emission Reduction Plans (NERPs) covering the period from 2018 to 2027. Instead of requiring each large combustion plant to comply with the emission limit values from the Large Combustion Plants Directive from 1 January 2018, these plans allow the countries to calculate national emissions ceilings for sulphur dioxide, nitrogen oxides and dust, and to gradually decrease their total emissions from selected pre-1992 large combustion plants until 2027. In 2027, all the plants included in the NERPs will individually need to be in compliance not only with the emission limit values from the Large Combustion Plants Directive, but also with Part 1 of Annex V to Directive 2010/75/EU on Industrial Emissions.

[2] Ministry of Spatial Planning, Construction and Ecology of Republika Srpska, Decision no. 15.03-360-164/21, 11 November 2021.

For nitrogen oxides, Nikola Tesla B in Serbia had the highest absolute emissions in 2023, at 11,633 tonnes – a significant increase from 8,500 tonnes in 2022.

In relative terms, Kosova A4 was the worst offender for nitrogen oxides in 2023, emitting 4.2 times as much as allowed, or 2,761 tonnes.

In July 2023, the Energy Community Secretariat took further steps in the dispute settlement procedure it initiated in 2021 against Bosnia and Herzegovina, Kosovo, and North Macedonia for their NERP breaches, making a reasoned request to the Energy Community Ministerial Council to make decisions on the cases,[3] which it did in December 2023.[4] The case against Serbia remains open but has not been escalated due to ongoing investments.

In addition to the NERP breaches, at the end of 2023, the deadline for closing plants under the 'opt-out' limited lifetime derogation expired. All three countries in the Western Balkans with coal power plants subject to this provision – Bosnia and Herzegovina, Montenegro and Serbia – are now breaching it, as none of the plants have stopped operating. These plants contributed to the region's massive coal pollution in 2023, but are not even part of the NERP-derived figures above.

Montenegro's Pljevlja plant has been operating illegally since late 2020, when it continued to operate beyond the allocated 20,000 hours allowed after 1 January 2018. But in 2022, Montenegro was joined first by Bosnia and Herzegovina's Tuzla 4 and Kakanj 5 plants and then by Serbia's Morava plant. Morava's operator, Elektroprivreda Srbije (EPS), has stated that it will still operate until 2026, along with another opt-out plant, Kolubara A.

As the 2021 edition of Comply or Close showed, such breaches are not only a matter of law, but of life and death. Out of a total of 19,000 deaths caused by Western Balkan coal plants from 2018 to 2020, the total number of deaths during this period caused by exceedances of NERP ceilings was nearly 12,000.

Due to breaches of the opt-out provisions, the Energy Community Secretariat opened dispute settlement cases against Montenegro in April 2021,[5] Bosnia and Herzegovina in October 2022,[6] and Serbia in October 2023.[7]

Overall, six years after the LCPD compliance deadline passed in the Energy Community, the situation remains appalling. Emissions covered by the NERPs have barely decreased since 2018 for sulphur dioxide and nitrogen oxides, and have even increased for dust. None of the opt-out plants have closed.

Even larger breaches are likely in 2024, due to the NERP ceilings decreasing for all three measured pollutants. The only potential mitigating factor is the desulphurisation unit which was opened at the Nikola Tesla A plant in Serbia this April.[8] But as seen in the case of Ugljevik or Kostolac B, its success depends on whether it is actually used.

None of the countries seems to have a clear, updated and realistic plan to ensure compliance and/or closure of all their coal power plants. Even North Macedonia, a regional leader in terms of solar installation, is deviating from its National Energy and Climate Plan (NECP), being distracted by costly gas power plans, letting its 2027 coal phase-out date slip to 2030, and doing almost nothing to address pollution.

Bosnia and Herzegovina, Kosovo, and Serbia all missed the June 2024 deadline to submit their final NECPs to the Energy Community Secretariat, and their drafts gave only a few clues about their coal phase-out plans.[9] Serbia's EPS has been more specific about its plans up till 2028, but not beyond. Montenegro has not even published a first draft of its NECP.

Overall, the pollution levels six years after the deadline for implementing the Large Combustion Plants Directive in the Western Balkans are utterly outrageous. The Western Balkan governments must finally start to govern and stop letting energy utilities endlessly extend their own deadlines.

[3] Energy Community Secretariat, Case ECS-08/21, *Energy Community*, accessed 5 July 2024.

[4] Energy Community Ministerial Council, Decision 2023/04/MC-EnC on the failure by the Republic of North Macedonia to comply with the Energy Community Treaty in Case ECS-7/21, Decision 2023/05/MC-EnC on the failure by Kosovo* to comply with the Energy Community Treaty in Case ECS-8/21 and Decision 2023/06/MC-EnC on the failure by Bosnia and Herzegovina to comply with the Energy Community Treaty in Case ECS-9/21, 14 December 2023.

[5] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'', *Energy Community*, 20 April 2021.

[6] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Bosnia and Herzegovina for breaching Large Combustion Plants Directive in the case of Tuzla 4 and Kakanj 5', *Energy Community*, 28 October 2022.

[7] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Serbia for breaching the Large Combustion Plants Directive in the case of TPP Morava', *Energy Community*, 23 October 2023.

[8] Igor Todorović, 'Mitsubishi Power commissions desulfurization system in Serbia's TENT A coal plant', *Balkan Green Energy News*, 25 April 2024.

[9] Serbia's NECP was adopted in late July 2024 but as of 29 July, the final version was not available to the public.

The need to cut pollution and ramp up energy efficiency and sustainable forms of renewable energy is greater than ever.

Commitments already made need to be honoured and plants that operated under the opt-out regime must close promptly.[10] North Macedonia needs to avoid further delays to its coal phase-out date and redouble efforts to be ready for it.

The Ugljevik and Kostolac B desulphurisation units must be operated whenever the plants are working. Ongoing investments in desulphurisation, denitrification and dust control equipment also need to be speeded up in the few cases where they will pay off, and in the meantime, operating hours need to be reduced to decrease the pollution burden.

NECPs need to contain realistic plans for the other plants in the coming years, based on their real technical condition, the level of investment required to bring them into compliance, and the availability of lignite of reasonable quality. The effects of the Carbon Border Adjustment Mechanism also need to be taken into account, as these will impact on coal plants' operations, particularly in Bosnia and Herzegovina, Montenegro and North Macedonia.[11]

In the meantime, their operating hours need to be reduced to keep pollution to a minimum. Demand can also be reduced by other measures, such as reducing distribution losses, insulating buildings, and installing efficient heat pumps for heating instead of electrical resistance heaters.

Although the primary responsibility is on the Western Balkan governments, the European Union must use its considerable influence to send clearer and stronger messages on the need for a sustainable, 100 per cent renewable energy transition. It must continue its financial support as well as securing additional funds for the just transition of coal regions. It must equip the Energy Community Treaty with stronger enforcement tools, for the benefit of human health and the environment, by strengthening its dispute settlement mechanism to include dissuasive penalties for breaches. And it must apply exemptions from the Carbon Border Adjustment Mechanism (CBAM) strictly, in order to maximise its transition incentive effect.

[10] The other option is to undergo major reconstruction to comply with the emission limit values for new plants under the Energy Community Treaty as the Pljevlja plant is attempting to do, but we are sceptical that this would be economically feasible in the majority of cases.

[11] CEE Bankwatch Network, The Western Balkan Power Sector - Between crisis and transition, *CEE Bankwatch Network*, December 2022.

Bitola power plant, North Macedonia
Photo: CEE Bankwatch Network

Introduction

Since the implementation deadline for the Large Combustion Plants Directive (LCPD) under the Energy Community Community Treaty passed on 31 December 2017, we have analysed the Western Balkan countries' compliance with their National Emissions Reduction Plans (NERPs) in five editions of the Comply or Close report. This year, we look at the non-compliance in 2023 compared to the previous five years.

The LCPD was included in the Energy Community Treaty when it was signed in 2005. For a treaty whose aim is to open and unify the energy market of the EU with that of its immediate neighbours in southeast and eastern Europe, the inclusion of environmental legislation in the Treaty is crucial to level the playing field and prevent emissions leakage.

NERPs allow countries to sum up emissions of sulphur dioxide (SO_2), nitrogen oxides (NO_x) and dust from some or all of their power plants and comply with an overall emissions ceiling, instead of having each plant comply with the emission limits stipulated in the annexes of the Directive. Developing a NERP was only one of the options for complying with the Directive; the countries chose whether to develop one or not.[12] The NERP allows combustion plants to derogate from individual compliance with the emission limit values (ELVs) for existing plants, set in Annex V, part 1 of the LCPD, until 2027. Instead, the NERP establishes periodic annual ceilings (2018, 2023, 2026 and 2027) which all plants' emissions combined must not go above, irrespective of their individual emissions.

Better performing plants for one pollutant can make up for worse performing ones, if the overall limit is met. Thus, NERPs already represent a compromise compared to full compliance by each unit: failure to even comply with NERP ceilings is thus extremely problematic.

Existing combustion plants also had an option to be exempted from the ELVs specified in the LCPD or from inclusion in a NERP if the operator opted for a limited lifetime derogation. This allowed the power plant to run for no more than 20,000 hours starting from 1 January 2018 and ending no later than 31 December 2023, without having to comply with emission limit values or ceilings. This derogation was applied to units for which either closure or complete refurbishment was planned. To operate beyond these time limits, the plants have to comply not only with the LCPD emission limit values but also with the newer and slightly stricter ones for existing plants from Annex V, part I of the Industrial Emissions Directive.

Coal plants which comply with the LCPD still have health impacts, but those which do not are increasing ill health and premature deaths unnecessarily and illegally. Complying with the NERP ceilings and opt-out conditions are therefore not just a matter of compliance, but of life and death. As demonstrated in our 2021 report, between 2018 and 2020, an estimated 19,000 people died as a result of pollution from Western Balkan coal plants, of which 12,000 were due to emissions breaches.[13]

Taking action to reduce pollution is therefore imperative and long overdue. This sixth Comply or Close report looks at the official reported data for 2023 to see how the situation has evolved since 2018. It provides a regional overview of the results together with country profiles for Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia.

[12] Except Montenegro, which only has one large combustion plant and therefore cannot add up the total of several plants to make a national ceiling.

[13] CEE Bankwatch Network and Centre for Research on Energy and Clean Air (CREA), Comply or Close, *CEE Bankwatch Network*, September 2021.

Regional overview of pollutant emissions[14]

By 31 December 2017, the deadline for LCPD compliance in the Energy Community countries, the coal power plant operators in the Western Balkans should have invested in pollution control equipment to a sufficient degree to comply with the emission limit values from the Directive, or at least to comply with the national ceilings laid out in the National Emissions Reduction Plans. The countries had already had 12 years after signing the Treaty to do so.

But despite this, not one of the countries with large combustion plants[15] ensured that their coal power plants complied with the unit-level emission limit values from the Directive by the beginning of 2018, or even by the end of 2023, six years later.

From 2018 until 2022, none of the four countries with NERPs – Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia – complied with the ceilings for sulphur dioxide they had committed to in their plans either.

In March 2021, the Energy Community Secretariat therefore opened dispute settlement cases against Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia for failure to adhere to their NERP ceilings in 2018 and 2019.[16] In February 2022, it took the next step forward in the process by issuing reasoned opinions against Bosnia and Herzegovina, Kosovo and North Macedonia.[17] A reasoned opinion is the second step in the process, when the party is requested to rectify the identified issues of non-compliance within a time-limit of two months. Depending on the reply by the relevant Government, the Secretariat may submit the case to the Ministerial Council for a decision on the Party's compliance with Energy Community law.

The case against Serbia remains open but did not escalate due uncertainties about the impacts of ongoing investments into pollution control equipment.

Alarmingly, the total aggregated figures reported to the European Environment Agency[18] by Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia for 2023 show significant emissions breaches for all three measured pollutants – SO_2, dust and NO_X – and even an increase in SO_2 emissions compared to 2022.

Overall, in 2023 sulphur dioxide emissions were 5.7 times as high as allowed by these countries' NERPs, compared to 5.6 times as high in 2022 and five times as high in 2021.

[14] Where available, we have used verified emissions figures from the European Environment Agency for 2018 to 2020, which may lead to some figures being somewhat different than those quoted in the previous Comply or Close reports.

[15] Albania has no functional large combustion plants. The 98 MW oil and gas plant at Vlora has never worked commercially due to technical problems.

[16] Energy Community Secretariat, 'Secretariat initiates dispute settlement procedures against four Contracting Parties in relation to NERPs', *Energy Community*, 16 March 2021.

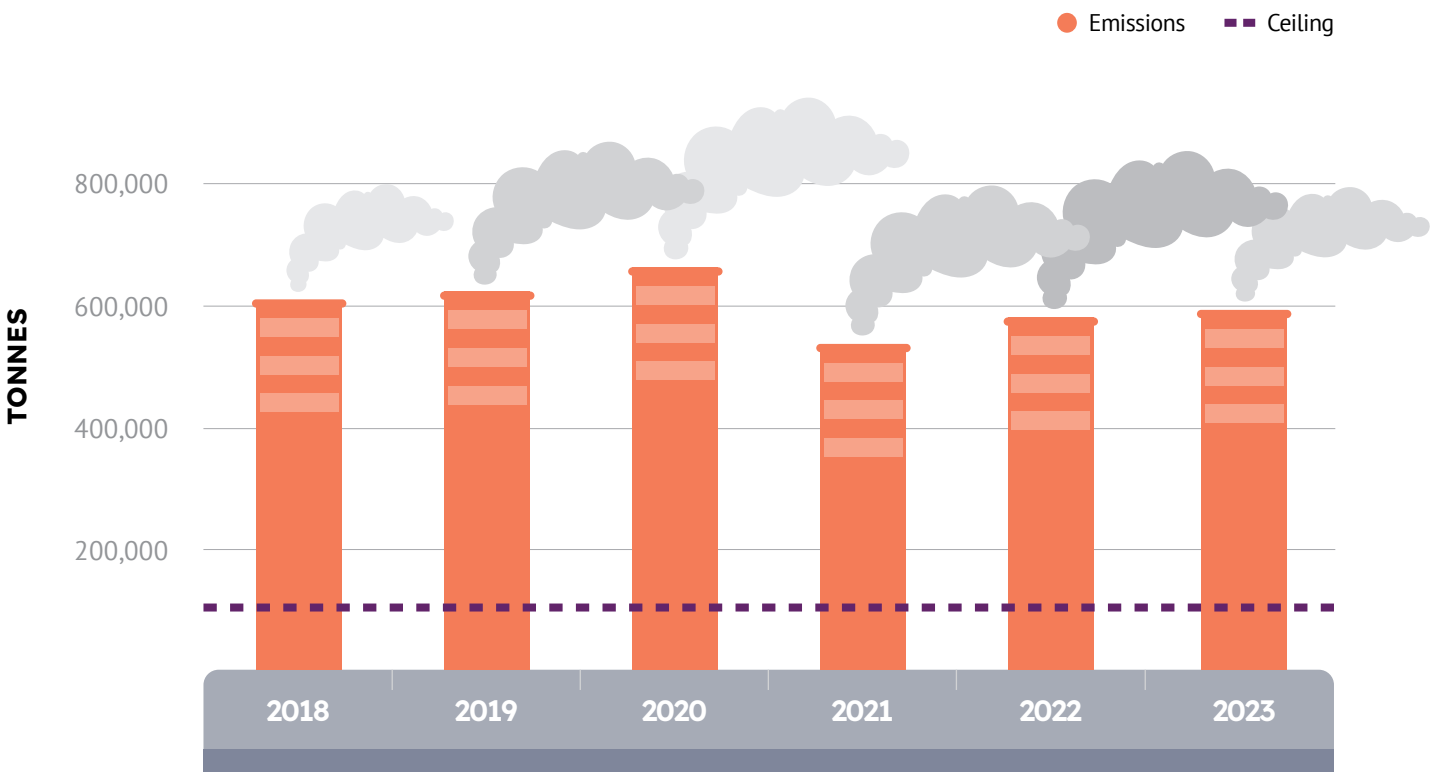
[17] Energy Community Secretariat, 'Secretariat brings forward cases against three Contracting Parties for not reducing air pollution from thermal power plants', *Energy Community*, 23 February 2022.

[18] See EIONET Central Data Repository under the country name > European Union obligations > Reporting on combustion plants

Figure 1:

Sulphur dioxide emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023

	2018	2019	2020	2021	2022	2023
Sulphur dioxide emissions	606,467	621,553	660,700	531,466	577,684	589,644
Sulphur dioxide ceiling	103,682	103,682	103,682	103,518[19]	103,518	103,518



In 2023, for the first time since the LCPD deadline passed, Kosovo reported SO_2 emissions lower than its ceiling. But this gain was outweighed by Serbia's SO_2 emissions having increased compared to 2022.

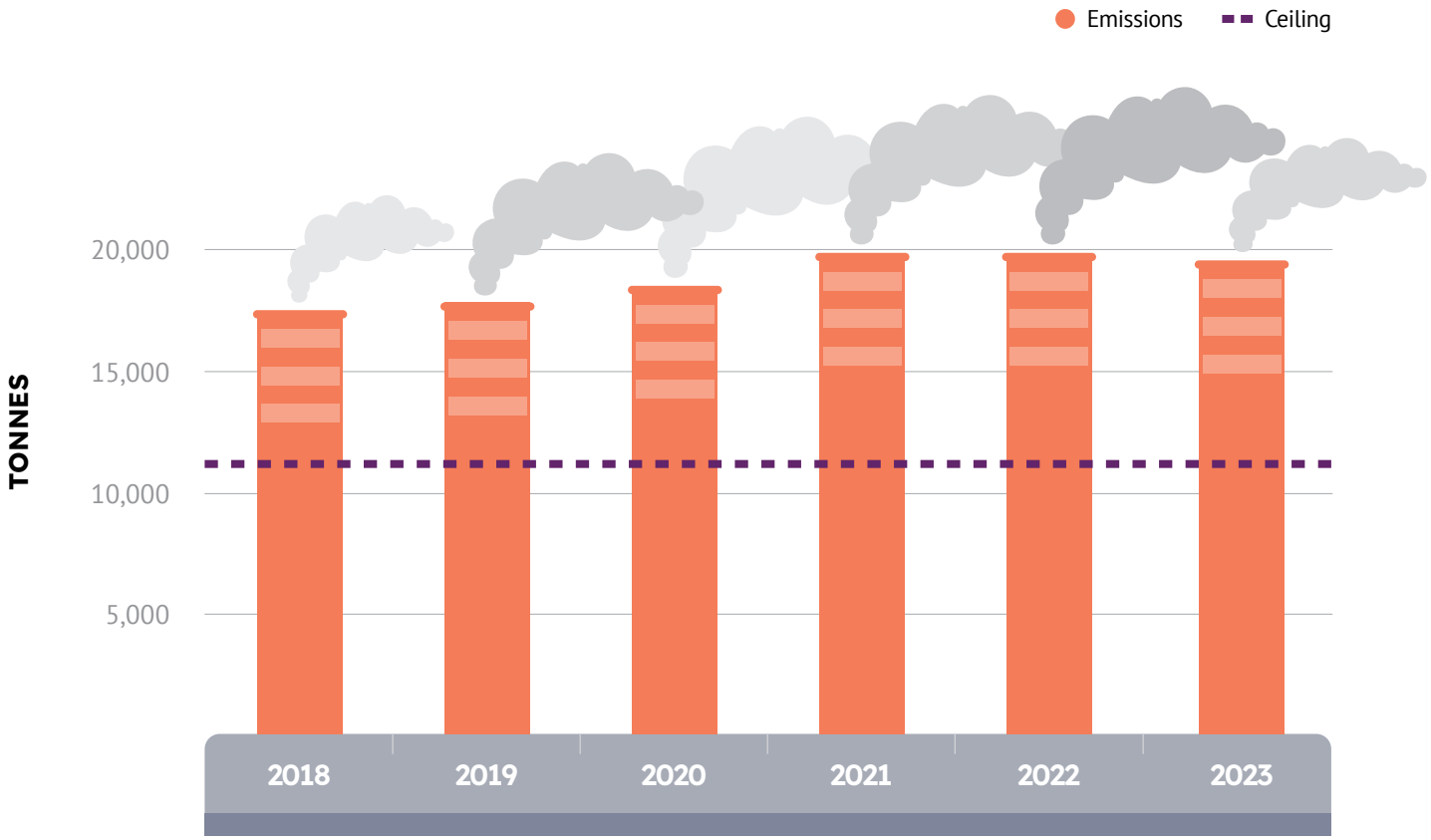
Dust emissions decreased only slightly in 2023, and were 1.75 times as high as allowed by the countries' NERPs, compared to 1.8 times in 2022. Kosovo, Bosnia and Herzegovina and North Macedonia again greatly exceeded their national ceilings for dust.

[19] Kosovo's SO_2 ceiling dropped slightly in 2021.

Figure 2:

Dust emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023

	2018	2019	2020	2021	2022	2023
Dust emissions	17,414	17,557	18,246	19,808	19,859	19,611
Dust ceiling	11,200	11,200	11,200	11,180[20]	11,180	11,180



In 2022, for the first time, total emissions of nitrogen oxides slightly exceeded the sum of the countries' ceilings – a breach which increased to nearly 1.3 times the combined ceilings in 2023. This was because there were no investments in NO_x reduction, the annual ceilings for this pollutant tighten every year, and absolute emissions stayed at a high level.

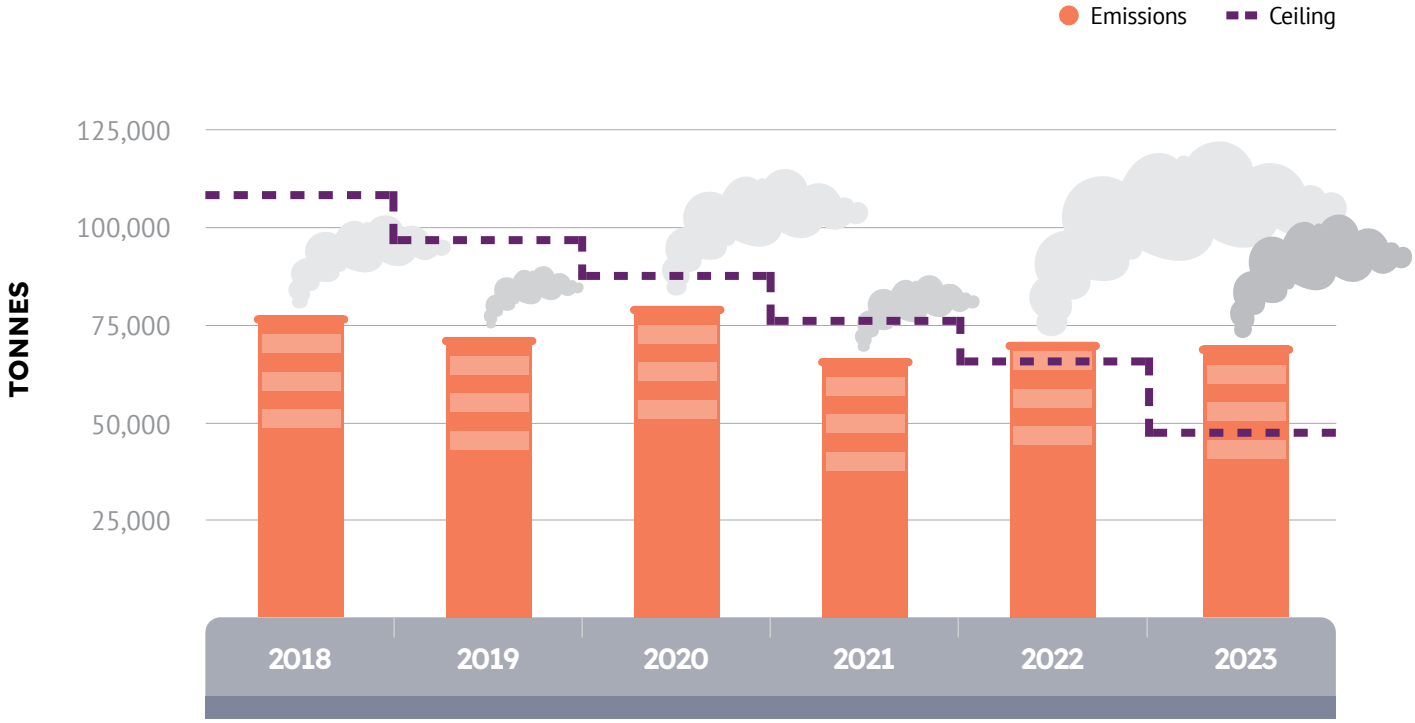
Kosovo and Bosnia and Herzegovina were the main offenders in relative terms, however Serbia also exceeded its NO_x ceiling for the first time.

[20] Kosovo's dust ceiling dropped slightly in 2021.

Figure 3:

Nitrogen oxides emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023

	2018	2019	2020	2021	2022	2023
Nitrogen oxides emissions	77,068	72,136	79,694	67,213	70,767	69,153
Nitrogen oxides ceiling	107,353	97,226	87,100	76,768	66,641	48,344



Next year, when the 2024 data is published, we can expect to see even greater breaches, even if absolute emissions remain the same. This is because the NERP ceilings for sulphur dioxide and dust in most cases did not change between 2018 and 2023,[21] but are lower in 2024.

All of the above assumes that the emissions data is accurate. Yet many of the figures provided by the power plant operators are estimates rather than the result of continuous monitoring. The Large Combustion Plants Directive[22] obliges the countries to install and operate continuous emissions monitoring equipment, but to this day, almost half of the coal-fired power plants in the Western Balkans either have no such devices in place, or the devices in place do not work. Therefore, emissions data for all countries is at least partially based on estimates derived from once-monthly measurements and sometimes even measurements carried out once every three months.

[21] Kosovo's dust and sulphur dioxide ceilings dropped slightly in 2021.

[22] Article 12 of the Large Combustion Plants Directive

The measurements in North Macedonia during 2023 were particularly questionable. None of the coal-fired power plants have continuous monitoring in place, and previously they only reported based on calculations made from measurements done once a month. But in 2023, the monthly monitoring showed great variations in the measurements and seemed unreliable. So, when reporting their data to the European Environment Agency, the authorities used the emissions factors from 2020, 2021 and 2022 in combination with the thermal energy input to produce an estimate of the emissions from coal combustion. However, around a third of the six million tonnes of lignite needed for the operation of the Bitola power plant was imported in 2023, from different coal mines in the region.[23] Using implied emission factors from earlier years is only useful if the fuel characteristics and abatement efficiency are very stable, so energy production and related emissions cannot be simply calculated without proportionally taking into account the variations in fuel characteristics of the imported coal, including e.g. sulphur content, moisture, etc.

In 2023, Serbia's NERP coal plants were the highest SO_2 emitters, with 296,011 tonnes, followed by Bosnia and Herzegovina with 181,807 tonnes. Serbia's NERP plant SO_2 emissions increased significantly compared to 2022, when they emitted 261,217 tonnes of SO_2, while Bosnia and Herzegovina's stayed almost the same (182,667 tonnes in 2022).

In absolute terms, long-standing offender Ugljevik in Bosnia and Herzegovina was the highest-emitting unit for SO_2 in the region in 2023, with 97,189 tonnes.

Despite the installation of a desulphurisation unit, its SO_2 increased compared to 2022, when the plant emitted 85,526 tonnes. The desulphurisation equipment clearly did not work regularly during 2023, despite testing having reportedly finished successfully in August 2020[24] and an operating permit having been obtained for the de-SO_x in November 2021.[25] It looks increasingly doubtful that this EUR 85 million project will ever be properly utilised to bring the Ugljevik plant into compliance with its SO_2 ceilings and with the Industrial Emissions Directive limit values it needs to reach by 2027.

Nikola Tesla B in Serbia also had extremely high absolute SO_2 emissions in 2023 – 92,260 tonnes. A desulphurisation unit is currently being installed (see Serbia section), but the experience with Ugljevik and Kostolac B (see below) shows there is no guarantee that compliance will follow.

Although individual unit ceilings are not binding – only country-level ones are – looking at breaches of these unit-level ceilings can give a good indication of where particular action is needed. **In 2023 no fewer than four plants exceeded their ceilings for sulphur dioxide emissions by more than ten times:**

- Ugljevik, Bosnia and Herzegovina: 10.7 times
- Kakanj 7, Bosnia and Herzegovina: 10.7 times
- Bitola 1 & 2, North Macedonia: 10.6 times
- Kostolac A2, Serbia: 10.5 times

Even these appalling figures represent a decrease compared to 2022 for Bitola 1 & 2 and Kakanj 7. But they show an increase for Ugljevik and Kostolac A2.

Kostolac B, one of the highest absolute and relative sulphur dioxide emitters from 2018 to 2020, finally started to decrease its emissions in 2021. However, since then its SO_2 emissions have increased, despite having a desulphurisation unit installed. In 2023, its SO_2 emissions reached 45,803 tonnes, compared to 36,560 tonnes in 2022 and 26,015 tonnes in 2021.

Its desulphurisation unit, installed by the China Machinery Engineering Corporation (CMEC), was formally inaugurated in 2017, yet only obtained an operating permit in January 2023.[26] The 2021 to 2023 emissions, although rising, are lower than those for 2018 to 2020 and show that the facility must partly have been in use. But in 2023, it still emitted nearly 5.8 times as much SO_2 as allowed under the NERP.

[23] Srgjan Stojanchov, 'Промена на планот на ЕСМ – помалку ископ, повеќе увоз на јаглен', *Telma*, 25 February 2024.

[24] RiTE Ugljevik, 'Izuzetni rezultati u zaštiti životne sredine', *RiTE Ugljevik*, 27 August 2020.

[25] Ministry of Spatial Planning, Construction and Ecology of Republika Srpska, Decision no. 15.03-360-164/21, 11 November 2021.

[26] Renewables and Environmental Regulatory Institute (RERI), Desulphurisation in the Western Balkans, *Renewables and Environmental Regulatory Institute (RERI)*, March 2023.

For dust, the absolute highest emitter in the region was Kosova B2 in Kosovo. It emitted 3,798 tonnes – a large increase from 2,517 tonnes in 2022, and 9.2 times as much as allowed under Kosovo's NERP.

In relative terms, the Gacko plant in Bosnia and Herzegovina had the highest exceedance for dust, as it emitted almost 10.7 times as much as allowed by its ceiling in the NERP. At 3,241 tonnes, this represented a slight decrease compared to 2022, when it emitted 12 times as much as allowed, i.e. 3,649 tonnes.

Other very high dust emitters in the region are Kosova B unit 1, which emitted 2,136 tonnes in 2023, or 5.2 times as much as allowed, and Bitola 1 & 2 which emitted 2,582 tonnes, or 3.1 times as much as allowed.

For nitrogen oxides, Nikola Tesla B in Serbia had the highest absolute emissions in 2023, at 11,633 tonnes – a significant increase from 8,500 tonnes in 2022.

In relative terms, Kosova A4 was the worst offender for nitrogen oxides in 2023, emitting 4.2 times as much as allowed, or 2,761 tonnes.

All three countries with plants that entered the opt-out regime are also now in breach of the LCPD.

Eight units in Bosnia and Herzegovina, Montenegro and Serbia entered the so-called 'opt-out' regime in 2018: Tuzla 3 and 4, Kakanj 5, Pljevlja, Morava, Kolubara A3 (boiler 1), Kolubara A3 (boilers 3, 4, 5) and Kolubara A5.[27] But not one of them has complied with the relevant ELVs, despite the 31 December 2023 deadline having passed long ago and most or all of them having exceeded their 20,000-hour limits. As of early August 2024, none of them have closed, either.

The Pljevlja plant in Montenegro is undergoing a retrofit, the lifetime of Tuzla 4 and Kakanj 5 in Bosnia and Herzegovina was illegally extended by a decision of the Federation of BiH Parliament in March 2022.[28] In early 2023 Elektroprivreda Srbije (EPS) announced it would close the Kolubara and Morava plants only at the end of 2024,[29] but this now seems to have been changed until 2026.[30] The fate of Tuzla 3 is not entirely clear, as no decisions have been made to extend its lifetime but neither have any announcements been made about its closure (see section on Bosnia and Herzegovina).[31]

Due to breaches of the opt-out provisions, the Energy Community Secretariat opened dispute settlement cases against Montenegro in April 2021,[32] Bosnia and Herzegovina in October 2022,[33] and Serbia in October 2023.[34]

Overall, six years after the LCPD compliance deadline passed in the Energy Community, the situation remains appalling. Since 2018, emissions covered by the NERPs have barely decreased for sulphur dioxide and nitrogen oxides, and have even increased for dust. None of the opt-out plants have closed.

Even larger breaches are likely in 2024 due to the NERP ceilings decreasing for all three measured pollutants. The only potential mitigating factor is the desulphurisation unit which was opened at the Nikola Tesla A plant in Serbia this April.[35] But as always, its success depends on whether it is actually used.

[27] Energy Community Secretariat, Energy Community Secretariat's Summary Report on the final list of opted-out plants, April 2018.

[28] Energy Community Secretariat, 'Environmental concerns increase with decision on lifetime extension of Tuzla 4 and Kakanj 5', *Energy Community*, 25 March 2022.

[29] Vladimir Spasić, 'EPS sets out plan for shutting down coal power plants', *Balkan Green Energy News*, 16 February 2023.

[30] Elektroprivreda Srbije, Трогодишњи план пословања Акционарског друштва „Електропривреда Србије", Београд за период 2024-2026.г. - ИЗВОД, *Elektroprivreda Srbije*, January 2024.

[31] The Elektroprivreda BiH Business Plan 2024-2026 mentions closing the unit in line with the LCPD but foresees more, not less, electricity being generated in its thermal power plants in 2024 and 2025 compared to 2023, despite not adding any new capacity. See Elektroprivreda BiH, Plan poslovanja za period 2024. - 2026. godina, *Elektroprivreda BiH*, March 2024.

[32] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out''.

[33] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Bosnia and Herzegovina for breaching Large Combustion Plants Directive in the case of Tuzla 4 and Kakanj 5'.

[34] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Serbia for breaching the Large Combustion Plants Directive in the case of TPP Morava'.

[35] Igor Todorović, 'Mitsubishi Power commissions desulfurization system in Serbia's TENT A coal plant'.

NECPs bring no clarity on coal phase-out

Governments and utilities have for years presented coal as a reliable domestic source of energy in the Western Balkans, but as of 2024, the average age of the region's coal power units is 47. And in recent years coal supply has been a major issue for North Macedonia and Serbia.

Combined with other factors such as high reliance on climate-vulnerable hydropower and high gas prices that translated into high power import prices, several countries suffered from coal plant outages and electricity crises during the 2021-2022 and 2022-2023 winters – mainly Kosovo, North Macedonia, Serbia and Albania, as described in more detail in our 2023 Comply or Close report.

These underlined the importance of investing in new solar and wind generation capacity, but utilities also used them as an excuse to extend the lifetime of the Tuzla 4 and Kakanj 5 units in Bosnia and Herzegovina and to bring the Negotino heavy oil plant in North Macedonia back into usage after 12 years.[36] The immediate crises have been abated for now, but for how long remains unclear.

On the one hand, there have been some advances in wind and solar installation, and 2023 saw a speed-up in solar, particularly in North Macedonia, where 362 MW were installed, resulting in a total of 506 MW.[37] This, together with a slight decrease in demand, enabled the country to reduce annual net electricity imports from an average of 20 to 30 per cent of consumption to just 2.75 per cent in 2023.[38] But even in Bosnia and Herzegovina and Montenegro, which are net electricity exporters, there has been no recent progress in closing coal plants or even setting phase-out dates.

All the Western Balkan governments had to submit their draft National Energy and Climate Plans (NECPs) to the Energy Community Secretariat by the end of June 2023, and their final plans by the end of June 2024. These should have finally clarified the countries' plans for their coal power plants to comply or close, but at the time of writing in mid-July 2024, this was not the case.

Serbia, Bosnia and Herzegovina and Kosovo submitted draft NECPs in June and July 2023 but by the end of July 2024, the latter two had not adopted final versions. Serbia adopted its final NECP in late July. Bosnia and Herzegovina's and Kosovo's drafts outlined some steps to be taken before 2030 regarding coal plants, while leaving some details unclear. Serbia's draft was even less clear about what would happen to each plant and when.[39] None of the drafts named coal phase-out dates earlier than the overall 2050 EU carbon neutrality deadline.

Albania and North Macedonia adopted their NECPs in 2021 and 2022, respectively. North Macedonia's draft NECP[40] put the country's coal phase-out in 2027, but the final version contains an extra paragraph with an option to extend this until 2029,[41] and since then government documents have quoted it as 2030.[42] Both Albania and North Macedonia need to update their NECPs, as they did not include the Energy Community 2030 targets. North Macedonia's new government, in place since June 2024, may also bring changes in its energy policy.

As of late July 2024, Montenegro has not even published a draft NECP for public consultation. It had previously committed to a coal phase-out date of 2035,[43] but economic reality is likely to force an earlier closure of the Pljevlja plant.

[36] Dragana Petrushevska, 'N. Macedonia starts up TEC Negotino power plant - report', *SEENews*, 16 December 2021.

[37] Energy, Water Services and Municipal Waste Management Services Regulatory Commission of the Republic of North Macedonia (ERC), Annual Report 2023, *ERC*, April 2024.

[38] Ibid.

[39] As of 29 July the final version was not publicly available so could not be analysed on time for this publication.

[40] Government of the Republic of North Macedonia, National Energy and Climate Plan of the Republic of North Macedonia, Draft, *Government of the Republic of North Macedonia*, July 2020.

[41] Government of the Republic of North Macedonia, National Energy and Climate Plan of the Republic of North Macedonia, *Government of the Republic of North Macedonia*, 31 May 2022.

[42] See e.g. Government of the Republic of North Macedonia, Accelerating Coal Transition Investment Plan for the Republic of North Macedonia – Pelagonia and Southwest regions, *Climate Investment Funds*, January 2024.

[43] Beyond Fossil Fuels, Europe's coal exit - Overview of national coal phase out commitments, *Beyond Fossil Fuels*, last updated 10 June 2024.

Country profiles

Bosnia and Herzegovina (BiH)

Compliance with the NERP ceilings in 2023

Bosnia and Herzegovina's NERP[44] covers seven coal-fired units[45] and one smaller industrial power plant using heavy fuel oil. Of these, two units, Gacko and Ugljevik, are in Republika Srpska, and the Tuzla and Kakanj plants – which each have two units in the NERP, are in the Federation of Bosnia and Herzegovina (FBiH).

Another three units – Tuzla 3, Tuzla 4 and Kakanj 5[46] – were subject to limited lifetime derogations ('opt-outs') (see the section below).

BiH also has one newer plant which does not qualify for inclusion in the NERP – Stanari, in Republika Srpska, which officially started operations in September 2016 and was obliged to comply with LCPD limit values for new plants as soon as it started operating.

Once again in 2023, Bosnia and Herzegovina's NERP coal plants did not comply with the pollution ceilings for any of the required pollutants: sulphur dioxide, dust or nitrogen oxides.

As in most of the countries, sulphur dioxide is the gravest problem. **In 2023, just as in 2022, sulphur dioxide emissions from the NERP plants in BiH reached more than eight times as much as allowed** – 181,807 tonnes, compared to the ceiling of 22,195 tonnes. This barely represented any decrease compared to 2022, when the NERP units emitted 182,667 tonnes of SO_2.

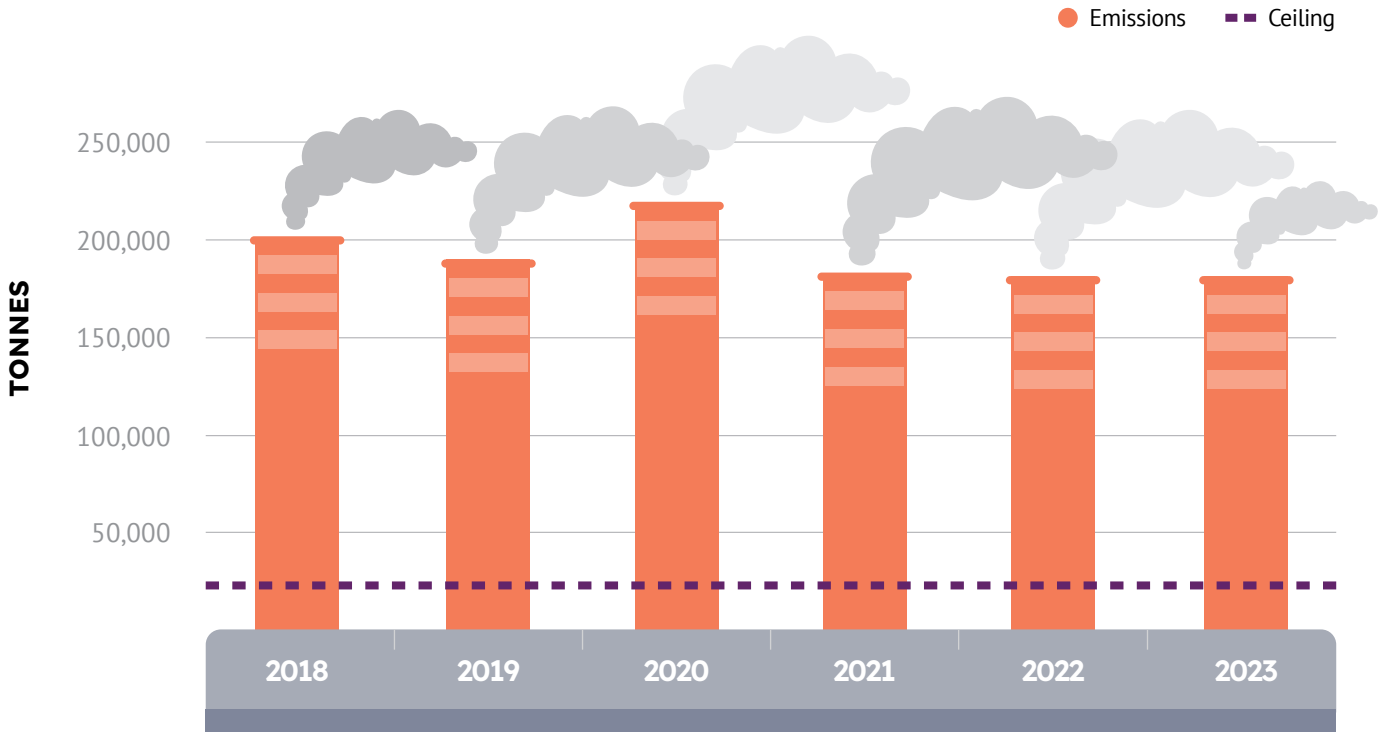
[44] USAID, National Emission Reduction Plan for Bosnia and Herzegovina, *Energy Community*, November 2015.

[45] The NERP text also includes Kakanj 5 and Tuzla 4, but these were later approved as opt-out plants so the real-life ceilings for BiH do not include the contribution of these plants.

[46] Energy Community Secretariat, Report on the final list of opted-out plants, *Energy Community*, April 2018.

Figure 4:

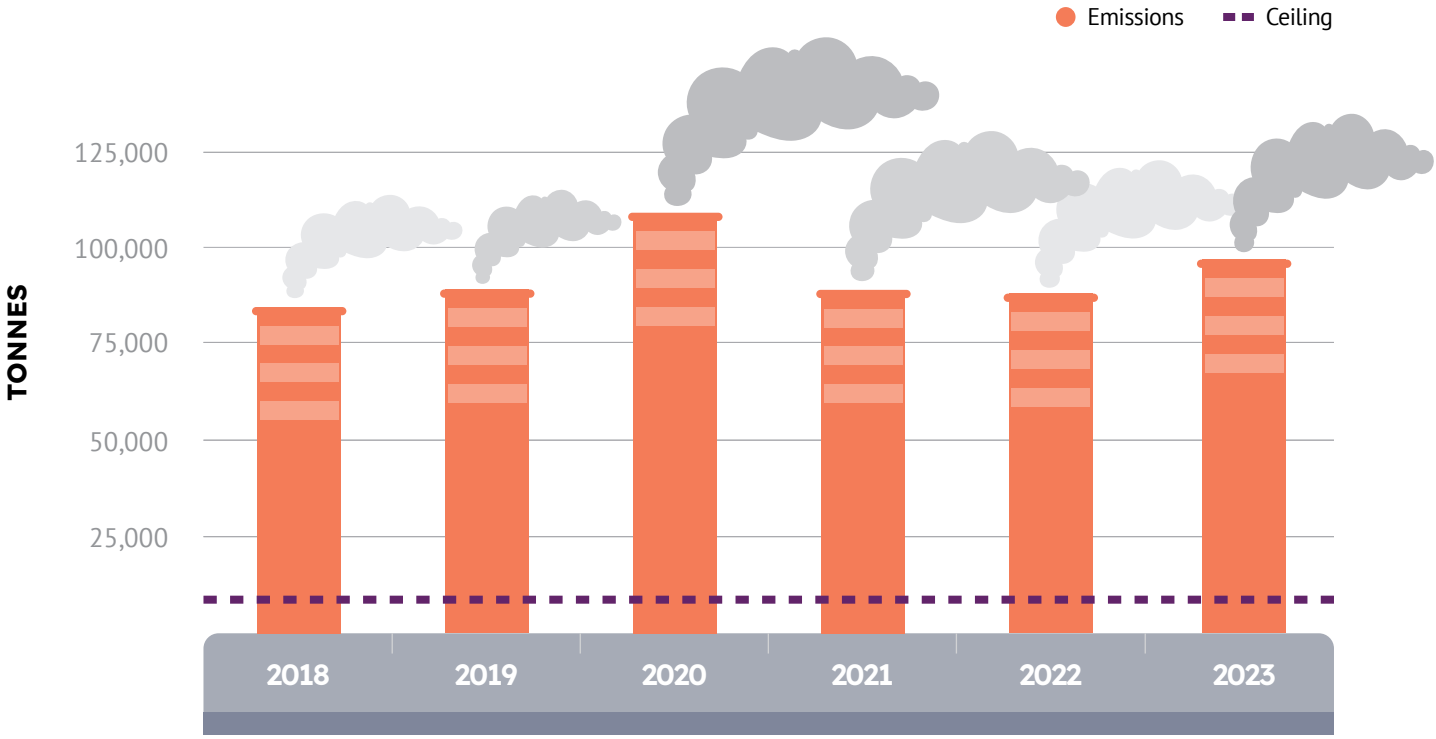
Sulphur dioxide emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023



The worst offender in BiH and regionally in 2023 in terms of absolute emissions was Ugljevik, whose desulphurisation equipment clearly did not operate, despite an operating permit having been obtained in November 2021.[47] Its 2023 emissions of 97,189 were higher than those in 2022 (85,526 tonnes) and 2021 (86,774 tonnes). Since 2018, the plant's sulphur dioxide emissions have increased overall.

[47] Ministry of Spatial Planning, Construction and Ecology of Republika Srpska, Decision no. 15.03-360-164/21, 11 November 2021.

Figure 5:
Sulphur dioxide emissions from Ugljevik, compared to the individual emissions ceiling, 2018 to 2023

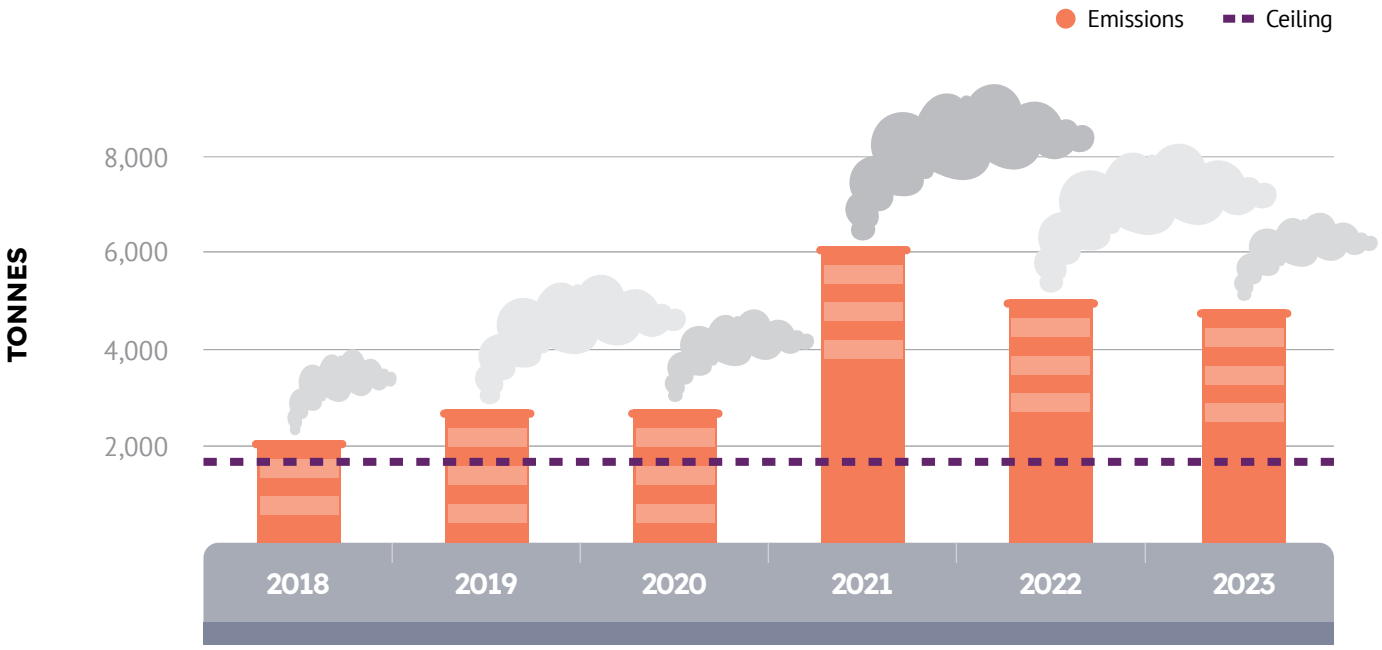


In 2023, Kakanj 7 and Ugljevik had the highest exceedances for sulphur dioxide in Bosnia and Herzegovina. Both emitted 10.7 times as much as their NERP limits allowed.

In 2023, dust emissions from Bosnia and Herzegovina's NERP plants amounted to 4,647 tonnes – 2.7 times as much as the allowed ceiling. This was slightly less than those in 2022 (4,892 tonnes) and represented a decrease from the 2021 peak of 6,040 tonnes, but was still massively more than the 2,686 tonnes emitted in 2020.

Figure 6:

Dust emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023



This very high level was largely due to massive dust emissions from the Gacko plant, which were 10.7 times as high as the plant's ceiling in 2023.

In May 2023, people from the Nadinići area held a protest due to the pollution,[48] and attempts to resolve the problem were made. In August 2023, it was reported that the works on the electrofilter had not brought significant improvements,[49] but by October, some improvements could be seen. However, it was also warned that this was a temporary solution and further investments would be needed.[50] The reported improvements are not yet visible in the emissions data, which is reported only as an annual aggregated figure.

[48] Kroz Staru Hercegovinu, 'RiTE Gacko: Saopštenje za javnost', *Kroz Staru Hercegovinu*, 16 May 2023.

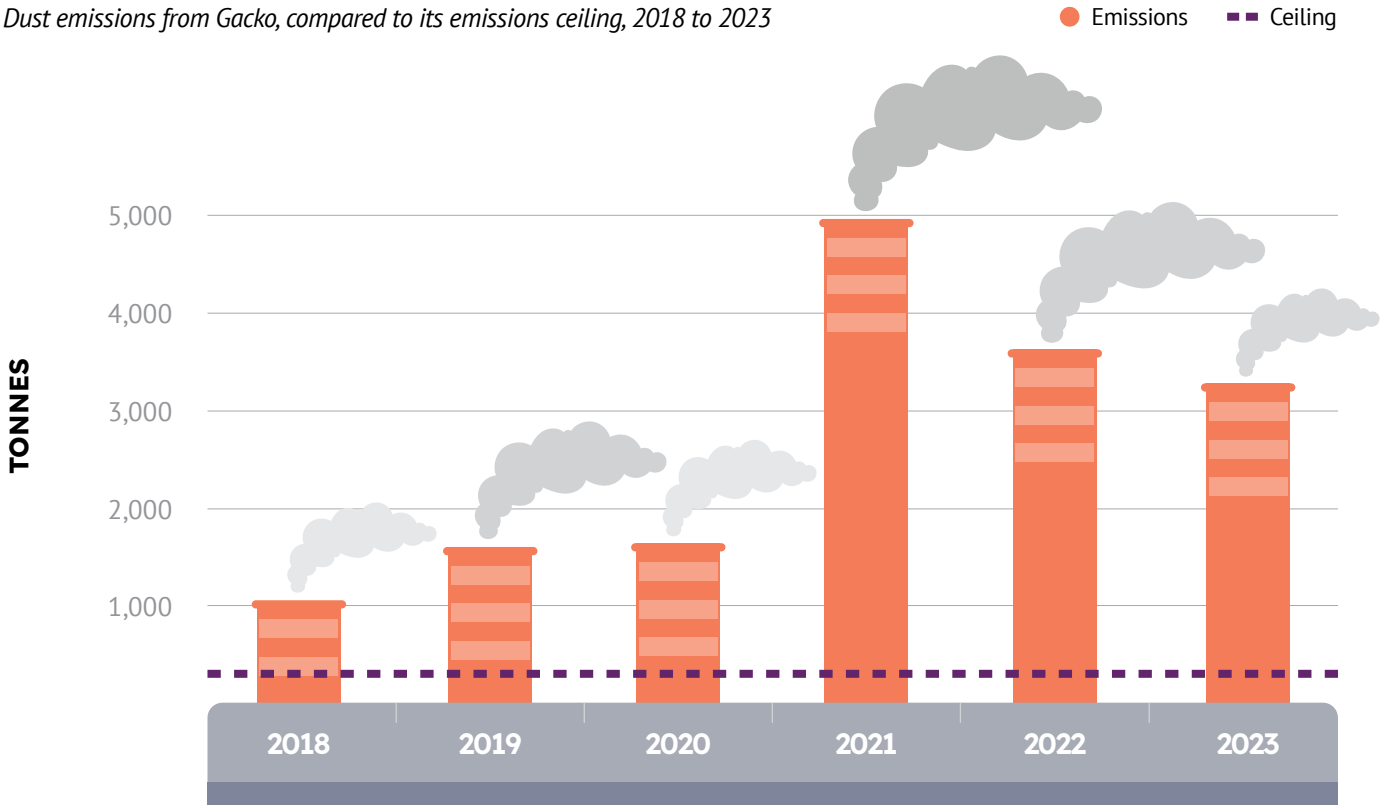
[49] Radio Televizija Republike Srpske, 'Ремонт термоелектране Гацко завршен - проблем загађења остао: У плану набавка пречистача угља (ВИДЕО)', *RTRS*, 26 August 2023.

[50] Radio Televizija Republike Srpske, 'Gacko: Privremeno riješen problem zagađenja vazduha', *RTRS Vijesti*, 28 October 2028.

Gacko power plant, Bosnia and Herzegovina
Photo: Andrey Ralev

Figure 7:

Dust emissions from Gacko, compared to its emissions ceiling, 2018 to 2023



Dust emissions from the Ugljevik plant also increased in 2023, amounting to 3.2 times as high as the plant's ceiling.

Nitrogen oxides emissions from BiH's NERP coal units in 2023 totalled 11,752 tonnes, compared to the allowed ceiling of 7,371 tonnes. This represented a slight drop compared to 11,944 tonnes in 2022.

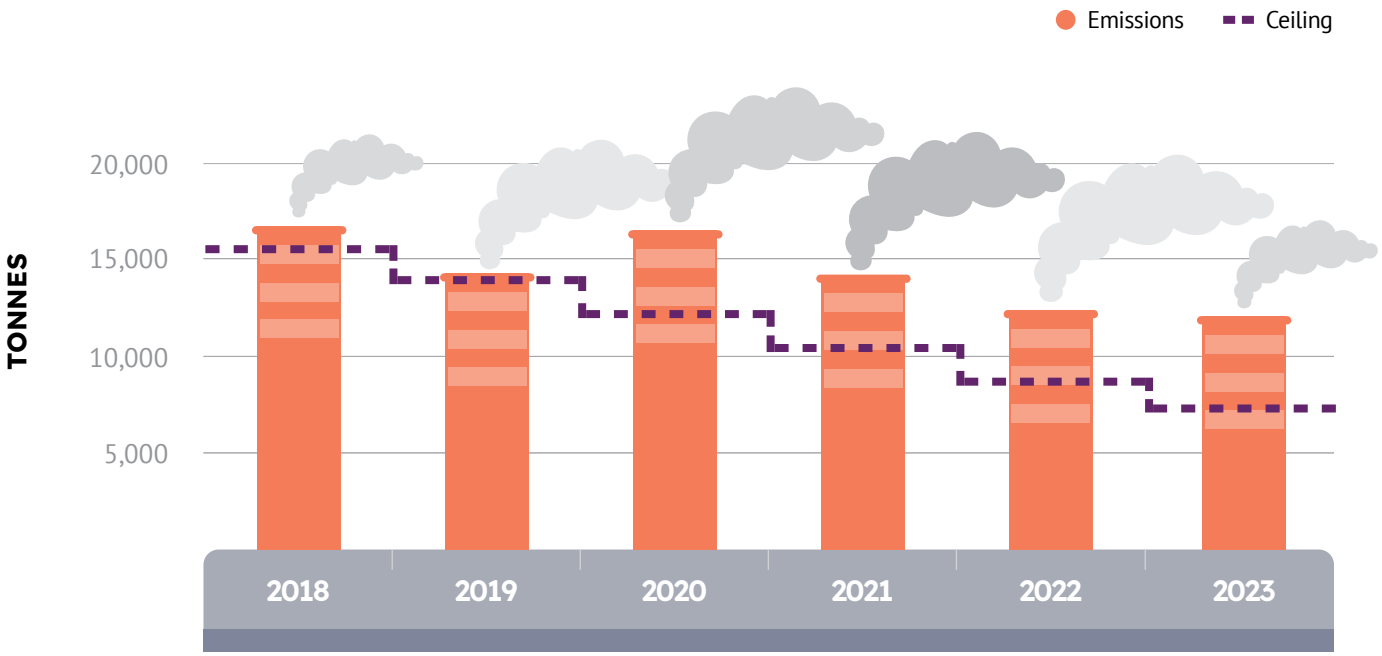
Nevertheless, NO_x emissions in 2023 were 1.6 times as high as the ceiling – higher than 2022 when they were 1.3 times as high, because the NERP ceiling for NO_x drops steadily each year.

In 2023, Gacko and Kakanj 7 had the highest exceedance for NO_x, with 2.4 times as much as allowed. Ugljevik was next, with 2.3 times as much NO_x as allowed.

Kakanj power plant, Bosnia and Herzegovina
Photo: CZZS

Figure 8:

Nitrogen oxides emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023



Bosnia and Herzegovina (2023)

SO_2 ceiling[51]	SO_2 emissions	Dust ceiling	Dust emissions	NO_x ceiling	NO_x emissions
22,195	181,807	1,690	4,647	7,371	11,752

In March 2021, due to the breaches of the overall NERP ceilings, the Energy Community Secretariat opened a dispute settlement case against Bosnia and Herzegovina, along with cases against other countries. On 13 July 2023, the Secretariat submitted a reasoned request to the Ministerial Council to make a decision confirming non-compliance, which it did in December 2023.[52] As the breaches have not been rectified, as of the end of July 2024, the case remains open.[53]

Overall in Bosnia and Herzegovina, since 2018, sulphur dioxide and dust emissions from NERP plants have increased, while only nitrogen oxide emissions have decreased somewhat, despite a lack of investments in denitrification equipment.

'Opting out' of compliance

As mentioned above, Tuzla 3, Tuzla 4 and Kakanj 5[54] were subject to so-called 'opt-out' rules, which allowed them to run for a total of 20,000 hours between 1 January 2018 and 31 December 2023. After this, they either had to close or comply with the emission limit values for new plants under the Industrial Emissions Directive.

[51] The original BiH ceilings in the NERP included Kakanj 5 and Tuzla 4, which were later included in the opt-out regime, so the calculations for the ceiling were based on the sum of the ceilings for the other plants.

[52] Ministerial Council of the Energy Community, Decision 2023/06/MC-EnC on the failure by Bosnia and Herzegovina to comply with the Energy Community Treaty in Case ECS-9/21, *Energy Community*, 14 December 2023.

[53] Energy Community Secretariat, Case ECS 09/21, Bosnia and Herzegovina/Environment, *Energy Community*, accessed 26 July 2024.

[54] Energy Community Secretariat, Report on the final list of opted-out plants.

By the end of 2023, Tuzla 3 had used up 19,476 hours since 1 January 2018, but due to the expiry of the deadline, had to close in any case. It is not clear whether this has happened, as no decisions have been made to extend its lifetime but neither have any announcements been made about its closure.[55] Controversial plans exist for its replacement by a biomass plant, but it is not yet clear whether and when it will go ahead.[56]

As explained in previous Comply or Close reports,[57] Tuzla 4 and Kakanj 5 have continued to work after their legal expiry date. After using up their 20,000 hours, they could only be operated if they met the emission limit values set out in Part 2 of Annex V to Directive 2010/75/EU.[58] Nowhere in the documentation provided by the plants' operator, Elektroprivreda Bosne i Hercegovine (EPBiH), to the government or the documentation provided by the government to the FBiH parliament did it suggest that any investments are planned that would make such compliance possible.

In October 2022, the Energy Community Secretariat opened a second case against Bosnia and Herzegovina for non-compliance with the Large Combustion Plants Directive.[59]

Ongoing investments in pollution control

In 2023, again no significant investments were undertaken to decrease coal pollution, though temporary steps were taken to alleviate the very worst dust pollution from Gacko.

Bosnia and Herzegovina has so far not come up with a clear plan to phase out coal. Official projections[60] that several of the NERP plants will operate beyond 2030 are not realistic. Even counting the newer Stanari plant which opened in 2016, BiH's coal plants are on average 44 years old. The NERP plants have a slightly lower average of 42 years, but only Ugljevik has desulphurisation equipment, and even that doesn't work. So it is hard to imagine that installing de-SO_x in the remaining plants makes economic sense, but continuing with current pollution levels is extremely damaging to human health, as well as illegal.

Regarding Ugljevik, as mentioned above and discussed in more detail in previous editions of Comply or Close, the plant obtained an operating permit for the de-SO_x unit in November 2021.[61] But still, this has not resulted in a decrease in emissions.

It was initially unclear why the de-SO_x at Ugljevik did not work, but in an April 2023 response to the Center for Environment, the plant operator RiTE Ugljevik stated that it is not operating continuously because it represents an 'economic burden'.[62] When working, the de-SO_x requires 11 MWh of electricity and 600 tonnes per day of limestone. Together with the costs of storing or disposing of the gypsum that results from the process, this results in costs of around EUR 20,000 per day for the plant operator.[63]

Regarding Gacko's enormous dust pollution, as mentioned above, it was reported in October 2023 that the problem had been alleviated but that further investments would be needed to ensure permanent improvements, including a unit for 'cleaning' coal.[64] The decreasing quality of coal is also an increasing issue. An earthquake buried part of the mine under water and spoils in 2022;[65] reportedly, better quality lignite still exists at the plant's captive mines, but is deeper and more difficult to reach.[66]

In May 2023, a public consultation was announced on the environmental impact assessment for plans to start burning so-called refuse-derived fuel (RDF) (i.e. communal waste that may or may not have been processed to some extent) in the Gacko power plant.[67] This would be a highly problematic proposal in any case, but the plant's lack of pollution control makes it particularly hard to comprehend. Thankfully, in August 2023, after significant resistance from local people and workers, the plant's director stated that using RDF is not a priority for the plant at the moment.[68]

[55] The Elektroprivreda BiH Business Plan 2024-2026 mentions closing the unit in line with the LCPD but foresees more, not less, electricity being generated in its thermal power plants in 2024 and 2025 compared to 2023, despite not adding any new capacity. See Elektroprivreda BiH, Plan poslovanja za period 2024. - 2026. godina.

[56] Klix.ba, 'Šta bi značio prelazak Bloka 3 Termoelektrane Tuzla na biomasu i kada bi se to moglo desiti', *Klix*, 21 January 2024.

[57] CEE Bankwatch Network, Comply or Close, *CEE Bankwatch Network*, June 2022.

[58] Energy Community Ministerial Council, D/2015/07/MC-EnC: On amending Decision D/2013/05/MC-EnC of 24 October 2013 on the implementation of Directive 2001/80/EC of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from large combustion plants and on amending Annex II of the Energy Community Treaty, *Energy Community*, 16 October 2015.

[59] Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Bosnia and Herzegovina for breaching Large Combustion Plants Directive in the case of Tuzla 4 and Kakanj 5'.

[60] E.g. from Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina, Framework Energy Strategy of Bosnia and Herzegovina until 2035, *Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina*, 69, accessed 2 July 2021.

[61] Ministry of Spatial Planning, Construction and Ecology of Republika Srpska, Decision no. 15.03-360-164/21, 11 November 2021.

[62] RiTE Ugljevik, Letter no: 14047/23, 18 April 2023.

[63] Ibid.

[64] Radio Televizija Republike Srpske, 'Gacko: Privremeno riješen problem zagađenja vazduha'.

[65] Radio Televizija Republike Srpske, 'Može li kvalitet uglja dovesti u pitanje rad TE Gacko?', *RTRS Vijesti*, 23 February 2024.

[66] Ibid.

[67] Dejan Tovilović, 'TE Gacko će spaljivati evropsko smeće?', *Capital*, 12 May 2023.

[68] Milanka Kovačević, 'Skoko – RDF gorivo za menadžment RiTE Gacko više nije tema, ERS – razmatramo ideje i načine korišćenja RDF goriva', *Direkt*, 25 August 2023.

Ugljevik power plant, Bosnia and Herzegovina
Photo: CEE Bankwatch Network

Despite proving unable to control pollution from the existing Ugljevik and Gacko plans, Republika Srpska is still permitting new coal power plants at the same sites. Comsar Energy's Ugljevik III plant has repeatedly received approvals for environmental impact assessments and environmental permits despite obvious legal breaches in the process and gaps in the studies.[69] And the Gacko II plant, promoted by Elektroprivreda Republike Srpske, is currently undergoing an environmental impact assessment process.[70]

EPBiH plans to invest in desulphurisation for Kakanj 6 and 7 and Tuzla 6, but this is not going well. In early 2021, the company opened a tender process for desulphurisation for Kakanj 7,[71] but in March 2022 another one was opened.[72] Similarly, a procurement procedure was carried out in late 2021 / early 2022 for desulphurisation for Tuzla 6,[73] but was then repeated in late 2022.[74]

A consortium consisting of Dongfang Electric International Corporation China, ITC Zenica, Fujian Lonjing Environment Technology Co. Ltd. China, and Institute for Construction IG Banja Luka was chosen in April 2024, but the decision has been challenged by the competing consortium, which alleges favouritism towards the Chinese-led bidder. It has referred the case to the Federal Police Administration (FUP).[75]

Denitrification is also planned at Kakanj 6 and 7,[76] but again there has been little clear progress.

EPBiH's latest business plan[77] expects the company to invest in the modernisation of Tuzla 6, the 'reconstruction' of Kakanj 7, desulphurisation units at Tuzla 6 and Kakanj 6 and 7, and denitrification at Kakanj 6 and 7. But it also mentions a retrofit of Tuzla 4, which is already 53 years old and should have closed under the opt-out system. Together with some smaller projects, these are estimated to cost a total of BAM 616.4 million, or around EUR 308 million, most of which should come from the company's own funds.[78] Given the company's poor financial situation[79] and expected impacts of the EU's carbon border adjustment mechanism (CBAM), which will begin in 2026, this seems somewhat optimistic.

In July 2024 a tender notice was posted for an overhaul of the generator in Tuzla 4.[80] A similar notice was posted in May 2024 for Kakanj 5,[81] another unit which should have closed under the opt-out rules.

69 CEE Bankwatch Network, Ugljevik III lignite power plant, Bosnia and Herzegovina, *CEE Bankwatch Network*, last updated January 2024.

70 Ministry of Spatial Planning, Construction and Ecology of Republika Srpska, Decision no. 15.4.1-96-150/23, 22 January 2024.

71 Akta, 'Otvoren poziv za izgradnju postrojenja za odsumporavanje u TE Kakanj, posao od 117 mil. KM', *Akta*, 4 January 2021.

72 Akta, 'Izvođenje radova na izgradnji postrojenja za odsumporavanje dimnih plinova u Termoelektrani Kakanj', *Akta*, 3 March 2023.

73 Bosnia and Herzegovina, LCP Emissions in 2021, *European Environment Agency*, March 2022.

74 Mihajlo Vujasin, 'Tender za izgradnju postrojenja za odsumporavanje u TE Tuzla otvoren do 15. Novembra', *Balkan Green Energy News*, 3 October 2022.

75 Amil Dučić, 'A criminal complaint filed against director of EPBiH and several other individuals, tenders won by Chinese are contestable!', *Focus.ba*, 26 June 2024.

76 Elektroprivreda Bosne i Hercegovine, Plan poslovanja za period 2024.-2026. godina.

77 Ibid.

78 Ibid.

79 Elektroprivreda Bosne i Hercegovine, 'Korigovan Finansijski izvještaj o poslovanju za 2023. godinu - gubitak 331 milion KM', *Elektroprivreda Bosne i Hercegovine*, 5 July 2024.

80 Elektroprivreda Bosne i Hercegovine, Obavještenje o nabavci 986-1-2-150-3-149/24, *Elektroprivreda Bosne i Hercegovine*, 14 July 2024.

81 Elektroprivreda Bosne i Hercegovine, Obavještenje o nabavci 1424-1-2-87-3-171/24, *Elektroprivreda Bosne i Hercegovine*, 28 May 2024.

Kosovo

Compliance with the NERP ceilings in 2023

All of Kosovo's five coal-fired units (Kosova A3, A4 and A5 and Kosova B1 and B2) are included in the NERP. The year 2023 marked the first time since 2018 that Kosovo was no longer in breach of the ceilings for all three pollutants, but 'only' those for dust and NO_x.

Dust emissions have always been the country's biggest problem, but in 2023 they increased by 12 percent compared to the previous year.

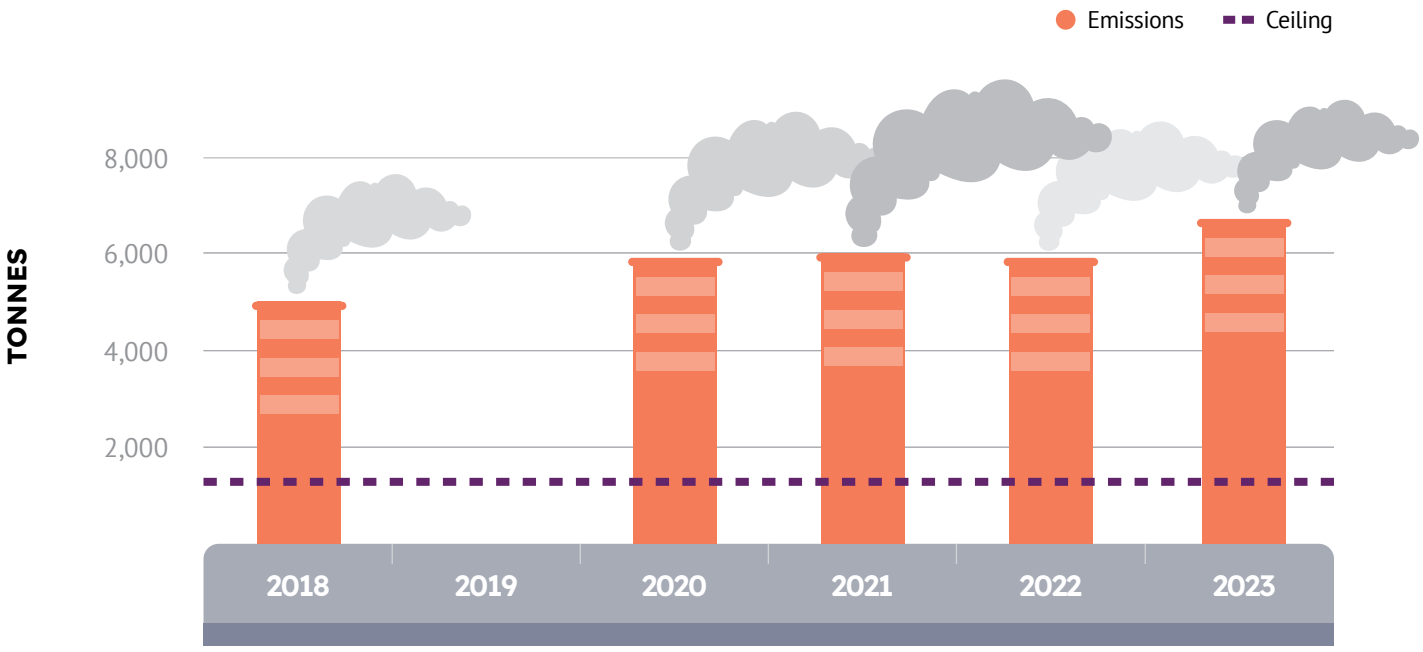
SO_2 emissions were at their lowest since 2018, at 10,495 tonnes – just 400 tonnes below the ceiling. **NO_x emissions**, albeit at their historic lowest, **were 2.7 times above the ceiling**, set in 2023 at less than 50 per cent of the previous year's ceiling.

Dust pollution was 4.86 times above the national level ceiling set out in Annex 2[82] of the NERP, at 6,623 tonnes. Kosova B's two units alone breached the national dust ceiling in 2023 by almost four times, releasing a total of 5,934 tonnes of dust into the atmosphere. **Unit B2 alone emitted 9.15 times as much as its individual ceiling**, making it the country's worst emitter.

[82] This annex is not part of the publicly available NERP and has been leaked to the authors of this report.

Figure 9:

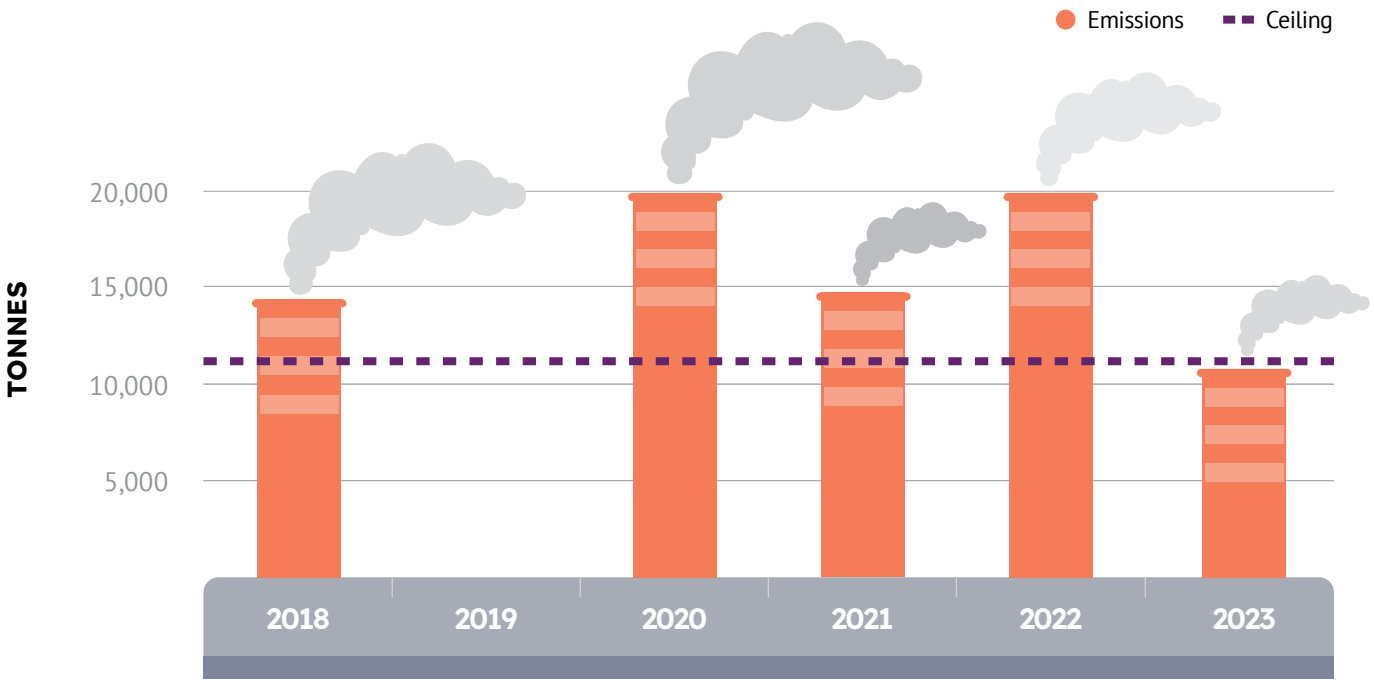
Dust emissions from Kosovo's NERP coal plants, compared to the national emissions ceilings, 2018 to 2023
(2019 data is unavailable)



SO_2 emissions dropped to 0.96 times below the national ceiling in 2023, or 10,495 tonnes — a considerable decrease compared to the previous year, which amounted to 19,987 tonnes. To the best of our knowledge, no de-SO_x equipment had been fitted, and the number of operating hours was almost identical to those in 2022 (only Kosova B1 operated 70 hours more). This calls into question the accuracy of the reported emissions. Most likely, the key to the puzzle rests in the calculation formula, because reported emissions are actually estimates: Kosova A lacks continuous monitoring equipment and Kosova B's monitoring equipment is operational only at regular testing intervals, in between which emissions are calculated mathematically.

Figure 10:

Sulphur dioxide emissions from Kosovo's NERP coal plants, compared to the national emissions ceilings, 2018 to 2023
(2019 data is unavailable)

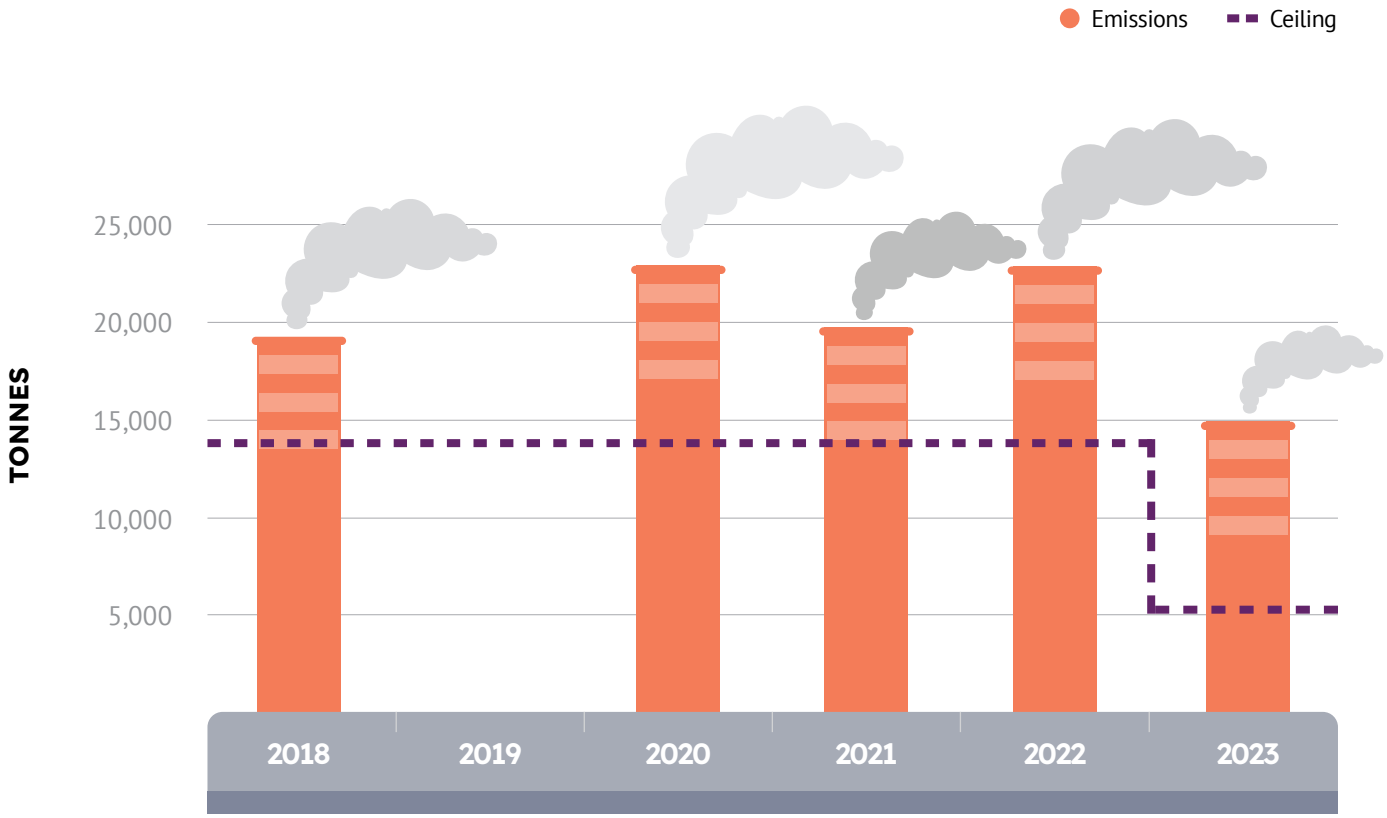


Kosovo's NO_x emissions dropped significantly compared to the previous years, to a historical low of 14,851 tonnes. As the ceiling for NO_x also decreased considerably, the country nevertheless stands out regionally for the highest breach of its NO_x ceiling – 2.73 times as much as allowed. On an individual unit level, Kosova A4 had the highest breach of its individual ceiling, emitting 4.17 more than allowed, but all units in Kosovo breached their individual ceilings by at least 2 times.

Kosovo A power plant, Kosovo
Photo: Arben Llapashtica

Figure 11:

Nitrogen oxides emissions from Kosovo's NERP coal plants, compared to the national emissions ceilings, 2018 to 2023
(2019 data is unavailable)



The main feature of Kosovo's NERP is the inconsistencies between the ceilings for the three pollutants that appear in the main body of the document[83] and those calculated in Annex 2 of the NERP. This annex is not part of the publicly available NERP and has been leaked to the authors of this report.

The SO_2 ceilings listed in the main body of the NERP only follow a linear decrease until 2021, and then they increase slightly in 2022 and 2023. The dust ceiling will also increase slightly in 2023 – the opposite of what should happen. Therefore, in this report the authors have taken the ceiling values from the Annex, because they appear more in line with the Energy Community's policy guidelines for the preparation of NERPs,[84] even though the ceilings for dust and NO_x are higher than those in the main body of the document.

[83] Government of Kosovo, National Emissions Reduction Plan: Kosovo, *Energy Community*, 2018.

[84] 'The ceilings for the years 2019 to 2022 shall be set providing a linear trend between the ceilings of 2018 and 2023. In practice, this means that the ceilings will not change between 2018 and 2023 except for NO_x.' Energy Community, Policy Guidelines 03/2014, *Energy Community*, December 2014.

Kosovo (2023)

	SO_2 ceiling	SO_2 emissions	Dust ceiling	Dust emissions	NO_x ceiling	NO_x emissions
Main NERP ceiling	11,125	10,495	885	6,623	5,563	14,851
Annex 2	10,894		1,362		5,446	

In July 2023, the Energy Community Secretariat took further steps in the infringement procedure it initiated against Kosovo and other countries in 2021, by following up with a reasoned request. The Secretariat notes '*After carrying out a preliminary procedure, on 13 July 2023, the Secretariat submitted a Reasoned Request to the Ministerial Council in Case ECS-8/21, following the failure of Kosovo* to rectify the breach identified by the Secretariat.*'[85] This was followed by a December 2023 Ministerial Council decision[86] declaring Kosovo to be in breach of the Treaty, along with Bosnia and Herzegovina and North Macedonia.

Ongoing investments in pollution control

Kosovo's draft National Energy and Climate Plan (NECP), submitted to the Energy Community Secretariat in July 2023, reinforces the country's Energy Strategy released a year prior and claims that:

> *the power plant units of 'Kosovo B1 and B2' will be refurbished to maintain the security of supply and decrease emissions. The refurbishment of the Kosovo B1 and B2 units will be carried out in two stages, and by the end of 2025, and respectively 2026, both units will operate in a more efficient, reliable mode, meeting mandatory emission standards of the Industrial Emission Directive.*[87]

The budget planning of the National Energy Strategy foresees a total of EUR 178 million to be spent on the refurbishment of each of the two units of Kosovo B (Kosovo B1 and B2) in the period from 2023 to 2025. According to the NECP, part of these resources will be provided by Kosovo Energy Corporation (Korporata Energjetike e Kosovës (KEK)) while another part will be covered by an EU grant. The grant money will be used to cover expenses for electro filters and de-NO_X.[88]

Yet already more than six years prior, Kosovo's NERP envisaged that Kosova B1 would undergo retrofitting by 2021[89] so that its dust and NO_x emissions would be compliant with the Industrial Emissions Directive emission limit values. It also envisaged that unit B2 would follow suit and comply by 2022, with the use of a EUR 76.4 million grant under the European Commission's Instrument for Pre-Accession II (IPA II) signed in November 2019.

The country's new Energy Strategy, worryingly, also mentions that one of the Kosovo A units 'will be refurbished by the end of 2024, whereas the decision to refurbish or phase out the second unit will be made in 2024 at the latest.'[90] There are a few problems with this: the first is the age of these units – over 50 years – and the second is that the end of 2024 will be impossible to meet, given that it is already mid-2024 and no sign of refurbishment has been publicly recorded. Additionally, the estimated cost of the required investment at Kosova A is EUR 120 million per unit, and that is in addition to nearly EUR 178 million needed for the two units of Kosova B. It is not clear how Kosovo could secure this funding.

85 Energy Community Secretariat, Case ECS-08/21, *Energy Community*, accessed 5 July 2024.

86 Energy Community Ministerial Council, Decision 2023/05/MC-EnC on the failure by Kosovo* to comply with the Energy Community Treaty in Case ECS-8/21, *Energy Community*, 14 December 2023.

87 Government of Kosovo, National Energy and Climate Plan of the Republic of Kosovo 2025-2030 (first draft version), *Energy Community*, 82, 2023.

88 Ibid.

89 Government of Kosovo, National Emissions Reduction Plan: Kosovo, 11.

90 Ministry of Economy, Energy Strategy of the Republic of Kosovo 2022-2031, *Government of Kosovo*, April 2023.

Montenegro

Pljevlja coal plant legal breach enters its fourth year

Montenegro only has one large combustion plant, the 225 MWe Pljevlja lignite power plant, which only has one unit. Therefore, it could not be subject to a National Emissions Reduction Plan. Instead of making sure it was LCPD-compliant by 2018, the 'opt-out' option was chosen, in which Pljevlja could operate for a total of 20,000 hours between 1 January 2018 and 31 December 2023. After that, as explained above, it either had to close, or to undergo a retrofit that would at minimum bring it into compliance with emission limit values for new plants from Annex V part 2 of the Industrial Emissions Directive.

According to its integrated environmental permit,[91] issued in March 2018, it had to comply with the latest EU LCP BREF standards by 2023, and was the first existing plant in the region that was required to do so.

However, the management of EPCG used the available 20,000 hours as quickly as possible and the plant had already exceeded this limit by the end of 2020.[92] But it did not stop there, operating for 6,450 hours in 2021[93] and 6,949 more in 2022.[94] Its report for 2023 lists 6,949 more hours,[95] but it is possible that has not been updated from the 2022 report.

In April 2021, the Energy Community Secretariat opened an infringement case against Montenegro,[96] and in February 2023 it issued a reasoned opinion,[97] followed by a reasoned request to the Ministerial Council in July 2023.[98] An opinion from the Energy Community Advisory Committee is currently pending before the Ministerial Council can take a decision to confirm the breach.

As described in previous editions of Comply or Close, successive governments in Montenegro have failed to take any action against the plant.

Emissions in 2023

In 2023, Pljevlja's sulphur dioxide emissions amounted to 44,017 tonnes, slightly less than in 2022 (46,504 tonnes). But its dust emissions doubled, from 560 tonnes in 2022 to 1,130 tonnes in 2023. Its NO_x emissions stayed almost the same as in 2022 – 3,982 tonnes in 2023 compared to 3,954 tonnes in 2022.[99,100]

Since 2018, the trends have been different for each of these three substances. SO_2 emissions have increased and decreased, and the reasons are not entirely clear. They are not fully accounted for by annual differences in operating hours.

91 Environmental Protection Agency of Montenegro website, last accessed 24 May 2021. The permit is no longer online; only the list of measures to be taken is still available online, but the announcement about the permit is still up.

92 Operating hours from Montenegro reports to the European Environment Agency, EIONET, Central Data Repository, for 2018, 2019 and 2020.

93 European Environment Agency, EIONET, Central Data Repository, *EIONET*, reported 15 April 2022.

94 European Environment Agency, EIONET, Central Data Repository, *EIONET*, reported 13 April 2023.

95 European Environment Agency, EIONET, Central Data Repository, *EIONET*, reported 8 July 2024.

96 Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out''.

97 Energy Community Secretariat, 'Secretariat sends Reasoned Opinion to address non-compliance of TPP Pljevlja with the Large Combustion Plants Directive', *Energy Community*, 15 February 2023.

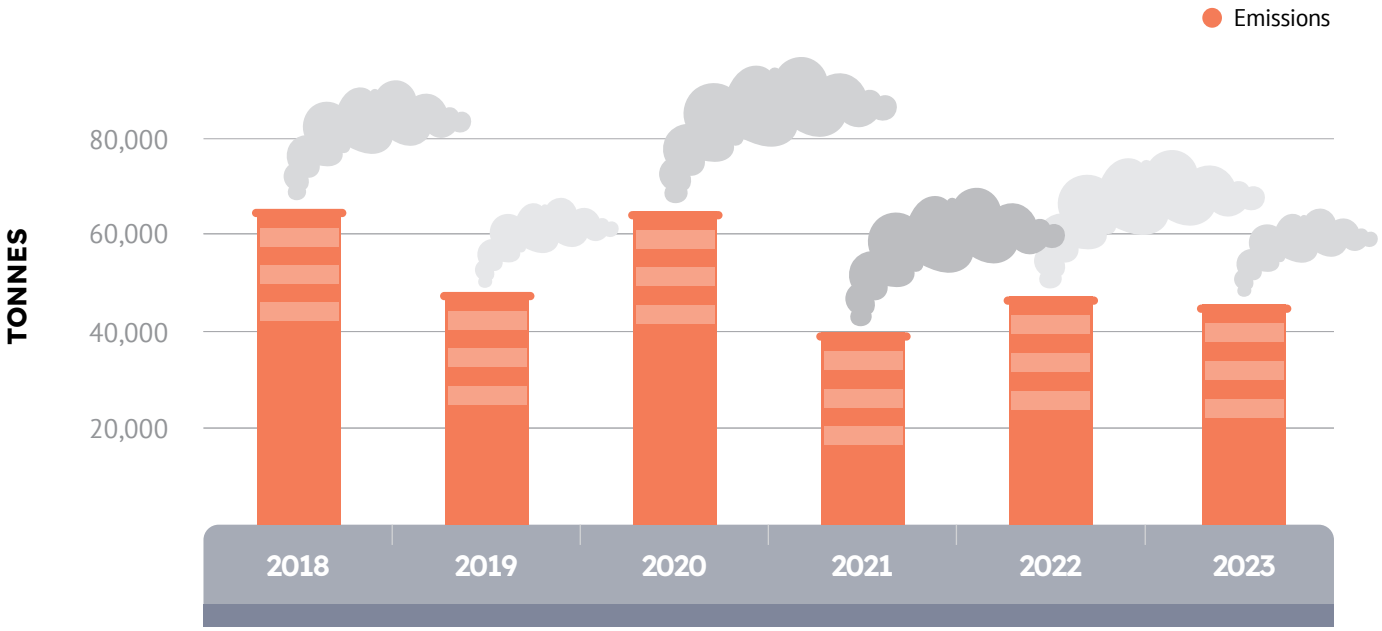
98 Energy Community Secretariat, Case ECS 15/21: Montenegro/Environment, *Energy Community*, accessed 11 July 2024.

99 European Environment Agency, EIONET, Central Data Repository, *EIONET*, reported 8 July 2024.

100 European Environment Agency, EIONET, Central Data Repository, *EIONET*, data for 2018, 2019, 2020 and 2021.

Figure 12:

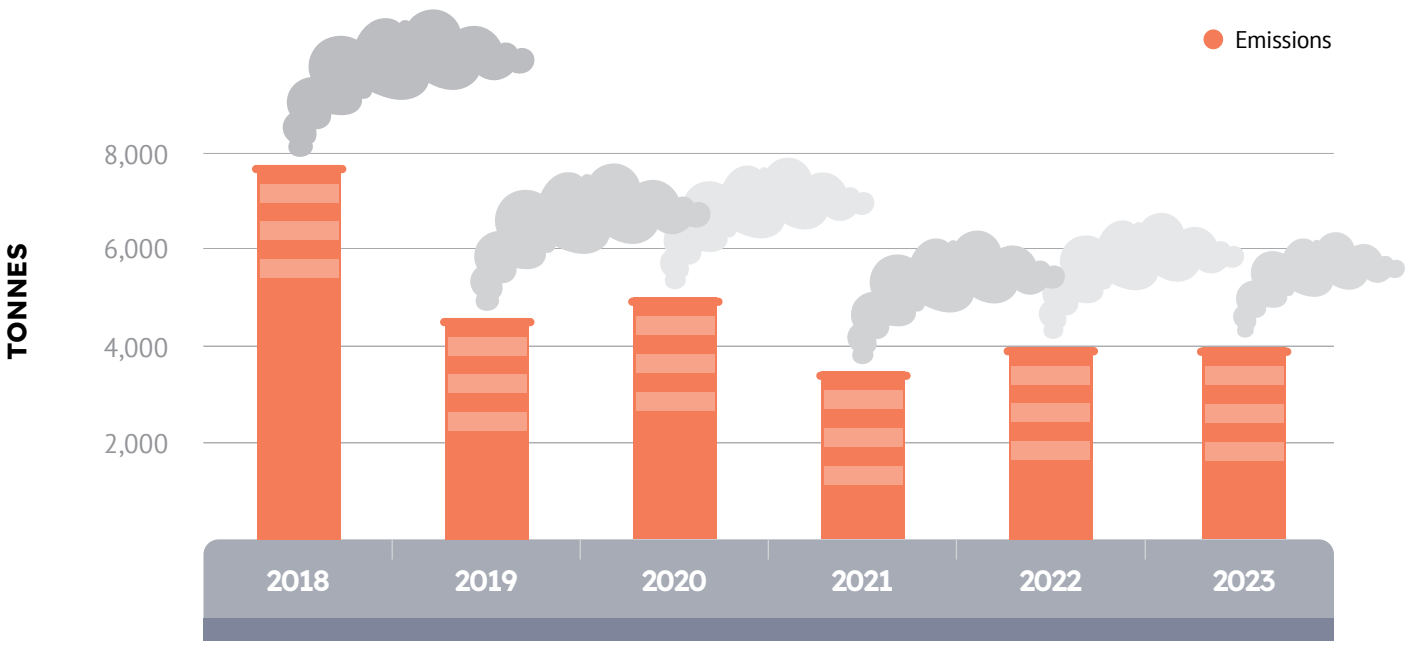
Sulphur dioxide emissions from Montenegro's Pljevlja coal plant, 2018 to 2023



NO_x emissions declined sharply in 2019 but have been hovering around similar levels since then. Again, the reasons are unknown and are not explained by operating hours or investments.

Figure 13:

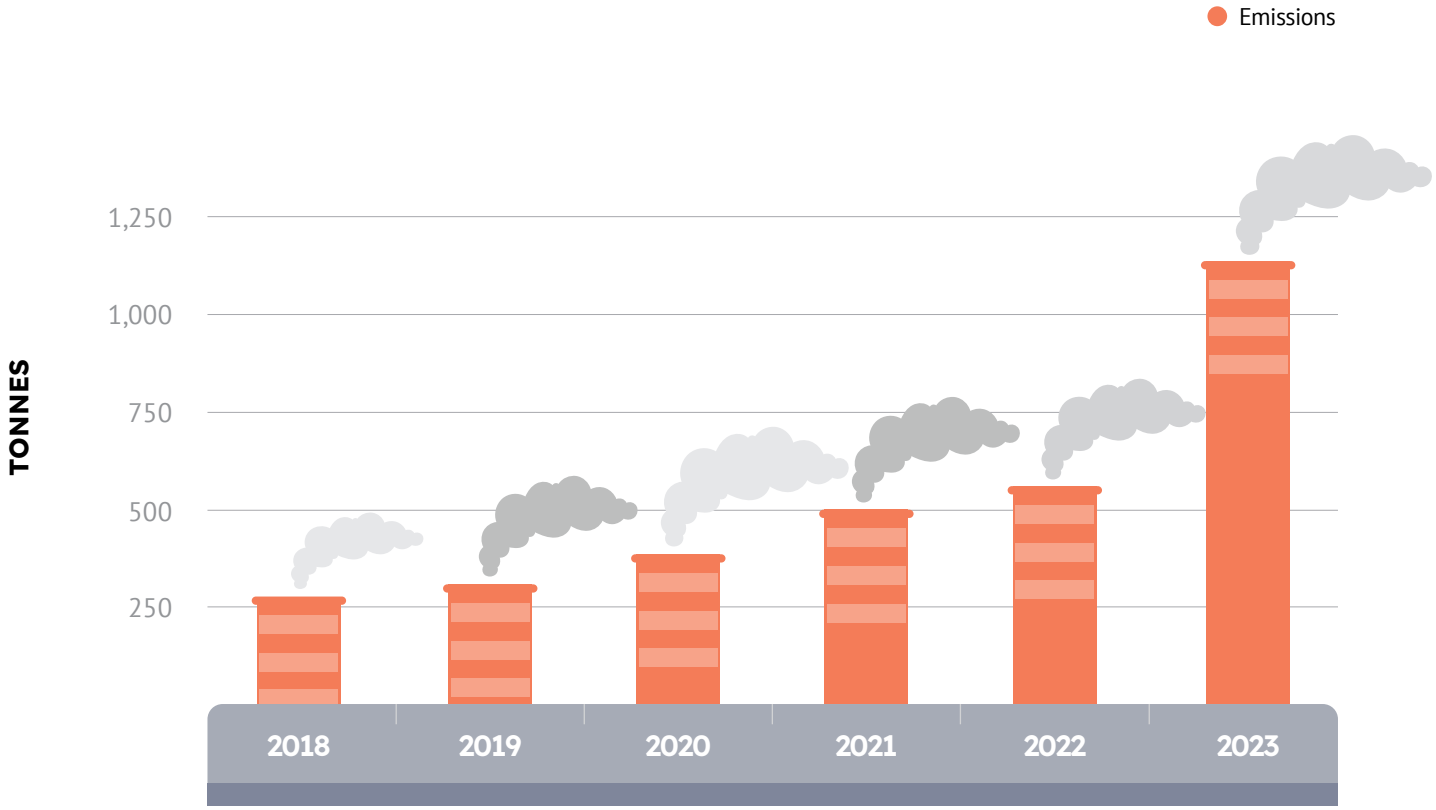
Nitrogen oxides emissions from Montenegro's Pljevlja coal plant, 2018 to 2023



Dust emissions, however, have been on an upward – rather than downward – trend since 2018, and took a massive jump upwards in 2023.

Figure 14:

Dust emissions from Montenegro's Pljevlja coal plant, 2018 to 2023



Ongoing investments in pollution control

As of July 2024, a modernisation project is ongoing at the Pljevlja plant, supposedly to bring it into line with the EU's LCP BREF standards. In June 2020, Montenegro's then government signed a contract with a consortium led by China's Dongfang (DEC International) to retrofit the plant, which also included well-connected local companies Bemaks, BB Solar and Permonte.[101]

The process has been plagued with irregularities, as discussed in previous editions of Comply or Close,[102] and it is far from clear whether the project will bring the promised improvements. Works only started in April 2022, nearly two years after the signing of the contract.[103] At that point, the end of the works were expected in October 2024. In March 2023, it was reported that the equipment was about to arrive from China to be installed after the preparatory works had taken place.[104]

However, in June 2024 it was reported that the part of the works requiring the plant to be offline would take place only in 2025 and should last seven and a half months.[105] The reasons for the delay are not completely clear, but such a long planned outage obviously cannot take place at periods of peak demand.

Already when the contract was signed with Dongfang in 2020, civil society organisations questioned the absence of a feasibility study for the modernisation project.[106] The plant was built in 1982, so its further lifetime will be limited and it is far from clear that it would pay off to install expensive desulphurisation equipment. The tender procedure also raised questions as it did not require bidders to explain which technical solution they would use, but only to comply with specific emission limit values. Dongfang's bid was substantially lower than that of the competing consortia, and one of them – Hamon-Rudis – questioned whether it was possible to achieve this goal with such a low bid.[107]

101 Balkan Green Energy News, 'EPCG signs agreement on TPP Pljevlja environmental overhaul', *Balkan Green Energy News*, 10 June 2020.

102 CEE Bankwatch Network, Comply or Close.

103 Vladimir Spasić, 'EPCG započela ekološku rekonstrukciju TE Pljevlja', *Balkan Green Energy News*, 24 April 2022.

104 Saša Bezarević, 'Stiže oprema iz Kine, rekonstrukcije Termoelektrane Pljevlja pri kraju', *RTCG*, 4 March 2023.

105 FOS Media, 'Rekonstrukcija TE Pljevlja neće uticati na povećanje cijene struje', *FOS Media*, 16 June 2024.

106 Radio Televizija Crne Gore, 'Objaviti studiju ekonomske opravdanosti rekonstrukcije TE Pljevlja', *Radio Televizija Crne Gore*, 24 July 2020.

107 Pippa Gallop, 'NGOs expect Energy Community infringement procedure on Montenegrin coal plant', *CEE Bankwatch Network*, 19 April 2021.

Hamon-Rudis turned out to be right, as the price of the project was later increased to EUR 70 million due to boiler adaptation works.[108] In recent months, EUR 80 million has been cited in the media.[109] It remains to be seen what the final price will be and whether the 42-year-old plant will be capable of meeting the EU LCP BREF standards afterwards.

As of late July 2024, Montenegro still has not published even a draft NECP, and its coal phase-out date remains unclear. In June 2021, Montenegro announced it will wean itself off coal by 2035 at the latest,[110] but in reality it is expected to happen earlier. From 1 January 2026, electricity exports to Italy made possible by the opening of an undersea cable in late 2019 are likely to decrease due to CBAM charges, depriving the plant of a lucrative source of income. Montenegro can avoid these by, among other measures, increasing its carbon price to the level of the EU Emissions Trading System by 2030, meaning it would need to gradually increase the current minimum price of EUR 24 per tonne.

Given the small size of the country, it would only take a few more utility-scale solar and wind farms to cover Montenegro's electricity demand, but progress has been slow in recent years.

Rooftop solar has advanced thanks to public electricity company Elektroprivreda Crne Gore's (EPCG) Solari schemes, which installed 30 MW by February 2024,[111] but utility-scale solar is lagging, with the first utility-scale plant of 4.42 MW starting operations only in December 2023.[112] In 2024, only 8.7 MW more utility-scale solar is planned, but 30 to 100 MW of additional rooftop solar should come online via the Solari schemes.[113] No new wind farms have started operating since 2019, though according to EPCG, construction of the Gvozd wind farm should have started by the time this report is published.[114]

108 Elektroprivreda Crne Gore stated that the additional EUR 15 million was for a separate project for boiler adaptation, but admitted that it was connected to the modernisation project. Draško Milačić, 'Rekonstrukcija Termoelektrana će koštati oko 70 miliona', *Dan*, 18 December 2021.

109 Radio Televizija Crne Gore, 'Građane Pljevalja čeka bolja i zdravija budućnost', *Radio Televizija Crne Gore*, 6 March 2024.

110 Balkan Green Energy News, 'Montenegro announces coal phaseout by 2035', *Balkan Green Energy News*, 1 July 2021.

111 Elektroprivreda Crne Gore, 'EPCG Solar gradnja predstavila se na Balkan solar samitu u Banja Luci', *EPCG Solar Gradnja*, 12 February 2024.

112 Ekovjesnik, 'S radom počela prva solarna elektrana u kopnenom dijelu Crne Gore', *Ekovjesnik*, 27 December 2023.

113 Government of Montenegro, Predlog odluke o Energetskom bilansu Crne Gore za 2024. godinu, *Government of Montenegro*, 16 November 2023.

114 Elektroprivreda Crne Gore, 'Đukanović: Gradićemo i vjetroelektranu "Gvozd 2"', *Elektroprivreda Crne Gore*, 15 May 2024.

Pljevlja power plant, Montenegro
Photo: CEE Bankwatch Network

North Macedonia

Compliance with the NERP ceilings in 2023

North Macedonia's NERP was adopted in 2017, without any public consultations or a strategic environmental assessment. It covers all eight existing large combustion plants from the energy sector, out of which three are coal-fired, one uses heavy oil and two are fossil gas heating plants that have been at least partially operational during the plan's implementation period. The remaining two are boilers in the old oil refinery which, although not officially closed, has not been operational for more than ten years.

During the six years since the LCPD compliance deadline passed, the country has only managed to move further away from compliance, both in emissions reduction and in monitoring. None of the coal-fired power plants have continuous monitoring in place yet, and so far they have only reported based on calculations made from measurements done once a month.

In 2023, the situation further deteriorated. Because the monthly monitoring was unreliable and showed great variations in its measurements, the authorities used the emissions factors from 2020, 2021 and 2022 in combination with the thermal energy input in terajoules to produce an estimate of emissions from coal combustion. However, these estimates are highly unlikely to accurately represent real emissions.

This is because energy input is not the only relevant factor for emissions: the chemical composition of the lignite (sulphur content, moisture, etc.) plays an important role as well. Almost one-third of the six million tonnes of lignite needed for the operation of the Bitola power plant was imported in 2023. The imports were done through three different companies from different coal mines in the region.[115] Considering that using implied emission factors from earlier years is only useful if the fuel characteristics and abatement efficiency are very stable. Energy production and related emissions cannot be simply calculated without proportionally taking into account the varying fuel characteristics of the imported coal.

In addition to this, public electricity utility Elektrani na Severna Makedonija (AD ESM) has made no investments in pollution control for the coal-fired power plants since 2013, when Bitola's units 2 and 3 were retrofitted to reduce NO_x emissions. As a result, SO_2 emissions have doubled since reporting for the NERP started in 2018, and dust emissions, although fluctuating slightly due to variations in operating hours, were still higher in 2023 than in 2018.

[115] Srgjan Stojanchov, 'Промена на планот на ЕСМ – помалку ископ, повеќе увоз на јаглен'.

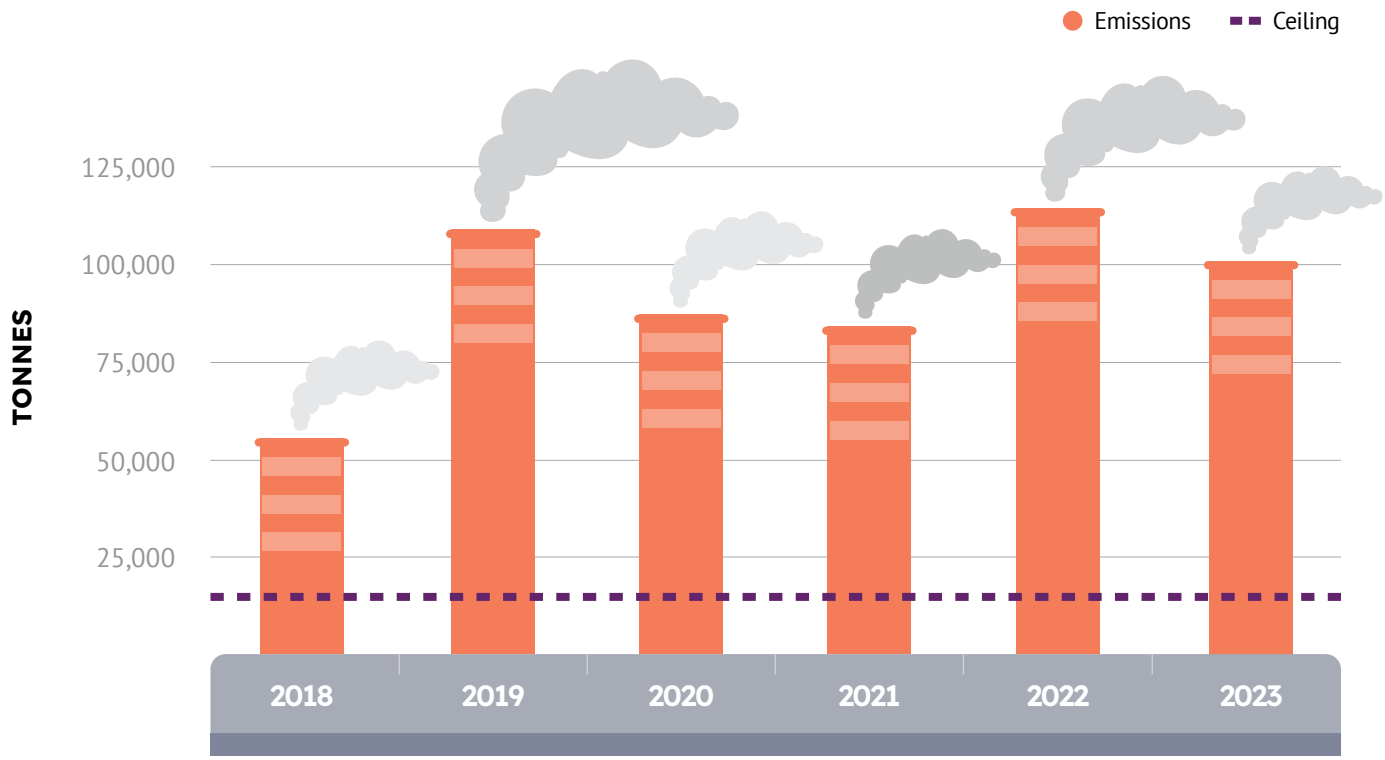
North Macedonia (2023)

SO_2 ceiling	SO_2 emissions	Dust ceiling	Dust emissions	NO_x ceiling	NO_x emissions
15,855	101,331	1,738	3,849	8,422	4,725

SO_2 emissions from coal combustion in 2023 were slightly lower than in 2022, but remained extremely high at 101,331 tonnes, and were 6.4 times higher than the national ceiling of 15,855 tonnes.

Figure 15:

Sulphur dioxide emissions from North Macedonia's NERP coal plants, compared to the national emissions ceilings, 2018 to 2023



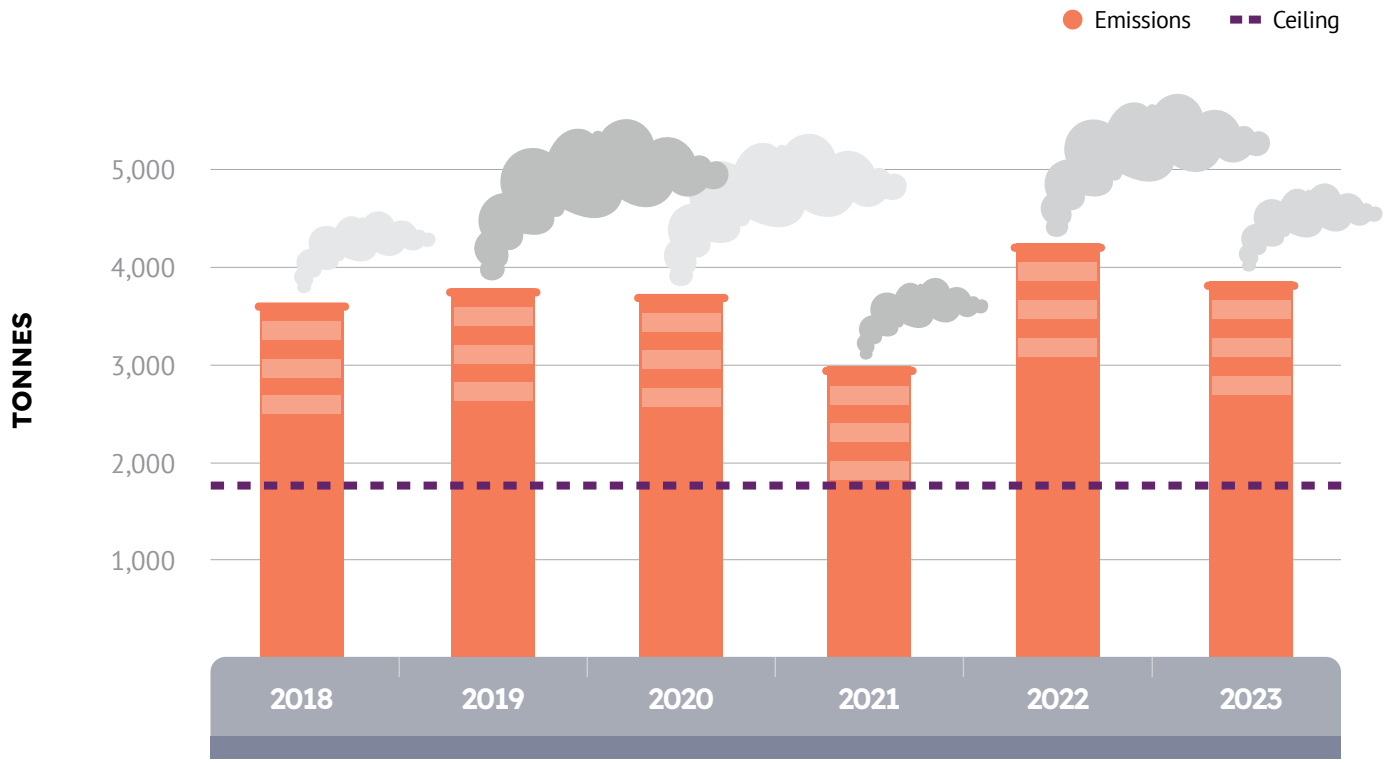
Individually, the stacks of Bitola B 1 & 2 and Bitola B3 emitted 69,998 and 29,067 tonnes respectively – more than 10 times as much as their individual ceilings. As in previous years, these two stacks combined contributed more than 95 per cent of North Macedonia's total reported SO_2 emissions. Oslomej's contribution was 2,266 tonnes – within its individual ceiling, but only because of its limited operating hours.

Dust emissions from coal-fired power generation dropped slightly in 2023 compared to 2022, but, at 3,849 tonnes, they remain more than twice as high as the national ceiling of 1,738 tonnes.

Bitola power plant, North Macedonia
Photo: CEE Bankwatch Network

Figure 16:

Dust emissions from North Macedonia's NERP coal plants, compared to the national emissions ceilings, 2018 to 2023



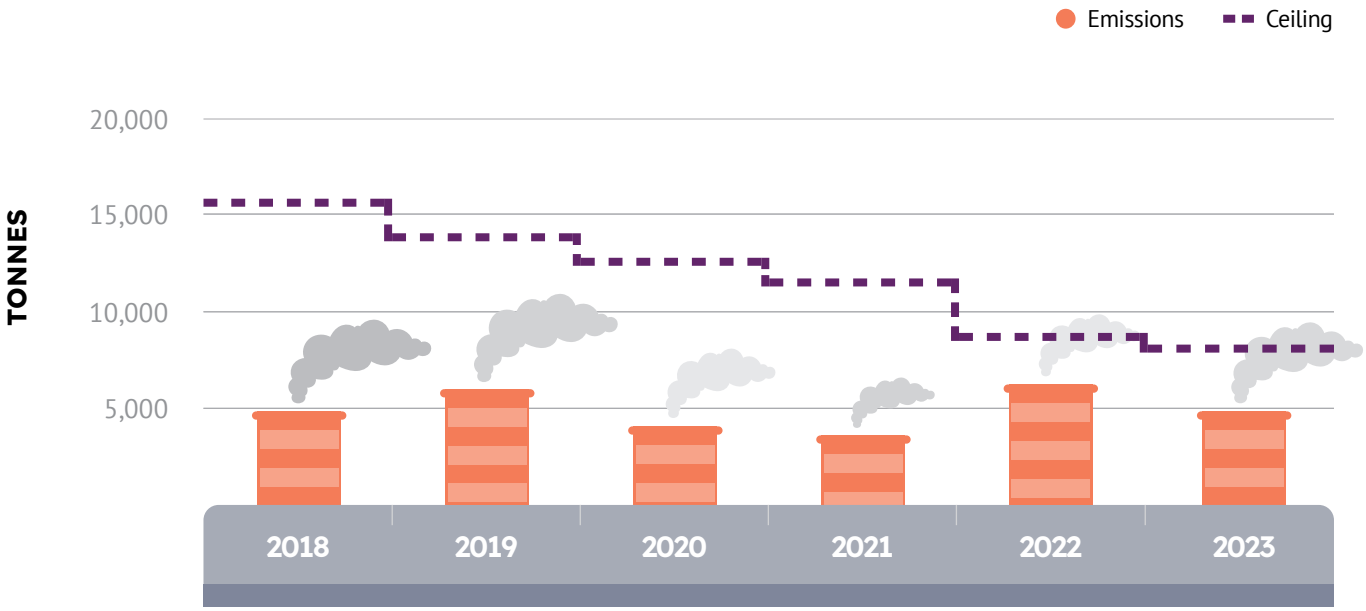
Bitola B 1 & 2 contributed 2,582 tonnes of dust and Bitola B3 974 tonnes. Altogether, the plant is emitting three times as much as the units' combined individual ceilings and remains the main reason why the country as a whole is not in compliance with its dust emissions ceiling. As with SO_2, Oslomej is in compliance with its dust emissions of 293 tonnes only due to its low operating hours.

North Macedonia's reported NO_x emissions show a drop of around 20 per cent compared to 2022, but considering that was the worst year on record for NO_x, this was somewhat expected. The 4,725 tonnes emitted in 2023 are comparable to the 4,708 tonnes in 2018 and within the 2023 and 2027 ceilings for NO_x.

Bitola power plant, Bosnia and Herzegovina
Photo: CEE Bankwatch Network

Figure 17:

Nitrogen oxides emissions from North Macedonia's NERP coal plants, compared to the national emissions ceilings, 2018 to 2023



In March 2021, due to the breaches of the overall NERP ceilings, the Energy Community Secretariat opened a dispute settlement case against North Macedonia, along with cases against other countries. On 13 July 2023, the Secretariat submitted a reasoned request to the Ministerial Council to make a decision confirming non-compliance, which it did in December 2023.[116] As the breaches have not been rectified, as of the end of July 2024, the case remains open.[117]

Ongoing investments in pollution control

Nearly two years since the Integrated Pollution Prevention and Control (IPPC) permit for the Bitola power plant was issued in December 2022, there is still not even a hint of investment in pollution control. Considering the legal timeframes for tendering and the time needed to implement these complicated investments, it is now impossible for the power plant to do a complete overhaul of the electrostatic filters by December 2025 or the construction of a desulphurisation facility by December 2026 as stipulated in the permit. These investments make little sense anyway, considering that North Macedonia plans to phase out coal by 2030 at the latest, but this does not change the fact that the plant keeps breaching all national and Energy Community Treaty obligations and must be penalised for that.

Instead of making the investments required to keep the plant's operations within legal limits, AD ESM is investing in the opening of new lignite mines. The planned Zivojno mine near Bitola still does not have an environmental impact assessment, but the company is already implementing tenders for the road infrastructure needed to bring lignite from the new mine to the power plant.[118] At the same time, it is even considering the opening of a new lignite mine near Oslomej at a location called Gusterica and in March 2024 awarded a tender to a company to prepare a *Study on the justification of the concession for the exploitation of mineral raw materials - coal at the Gusterica deposit.*[119]

The steps taken by AD ESM show that it is not taking the obligation to phase out coal seriously, yet at the same time it is avoiding making any investments to reduce the extremely high pollution from the power plants. This is untenable: the plants must comply and close.

[116] Ministerial Council of the Energy Community, Decision 2023/04/MC-EnC on the failure by the Republic of North Macedonia to comply with the Energy Community Treaty in Case ECS-7/21, *Energy Community*, 14 December 2023.

[117] Energy Community Secretariat, Case ECS 07/21, North Macedonia/Environment, *Energy Community*, accessed 26 July 2024.

[118] Electronic system for public procurements, Announcement for public procurement for a basic project for road infrastructure to transport coal from Zivojno to REK Bitola, 20 December 2023.

[119] Electronic system for public procurements, Announcement for public procurement for a Study on the justification of the concession for the exploitation of mineral raw materials - coal at the Gusterica deposit, 25 March 2024.

North Macedonia is the most advanced country in the region in terms of planning for the energy transformation and just transition, but the actions of the government and AD ESM are not aligned with its strategic documents. Since the country already has a Just Transition Roadmap[120] and an Investment Plan for accelerating coal transition,[121] it needs to start investing in those processes instead of new coal capacities and avoid further delays to its coal phase-out date. Private investors are already making significant investments in photovoltaic and wind plants, but AD ESM is falling behind by sticking to old policies.

In the upcoming revisions of the energy strategy and NECP, the country needs to reaffirm its commitment to phase out coal within the already agreed timeline. Meanwhile, it should continue the work on creating an environment that will allow a faster transition to renewable energy with a strong focus on decentralisation and environmental protection.

Serbia

Compliance with the NERP ceilings in 2023

In November 2022,[122] in a case initiated by the Renewables and Environmental Regulatory Institute (RERI), the Higher Court in Belgrade ordered state-owned energy utility Elektroprivreda Srbije (EPS) to bring SO_2 emissions from all its coal power plants into line with the country's NERP. The court rejected EPS's appeal in March 2023; however, EPS has taken no visible action to speed up the rehabilitation of the coal plants or close the worst emitters – quite the opposite.

In 2023, SO_2 emissions from the NERP coal power plants in Serbia increased compared to the previous two years. Dust emissions remained below the ceiling and are on a slow downward trend, whereas NO_x emissions went up compared to 2022 and breached the ceiling for the first time.

SO_2 emissions from the NERP coal plants are a major problem in Serbia. In 2023, they emitted 5.4 times as much SO_2 as allowed under the NERP ceiling.

In absolute numbers, the SO_2 emissions of the 14 coal-fired units included in the NERP amounted to 296,011 tonnes; the 2023 ceiling in the NERP for 18 large combustion plants[123] is set at a maximum of 54,575 tonnes.

This is a bit lower than in the period from 2018 to 2020 but higher than in 2021 and 2022. In 2022, the breach for SO_2 amounted to 4.8 times as high as the ceiling.

120 Government of the Republic of North Macedonia, Just Transition Roadmap, *Government of the Republic of North Macedonia*, May 2023.

121 Government of the Republic of North Macedonia, Accelerating Coal Transition Investment Plan for the Republic of North Macedonia – Pelagonia and Southwest regions, *Government of the Republic of North Macedonia*, January 2024.

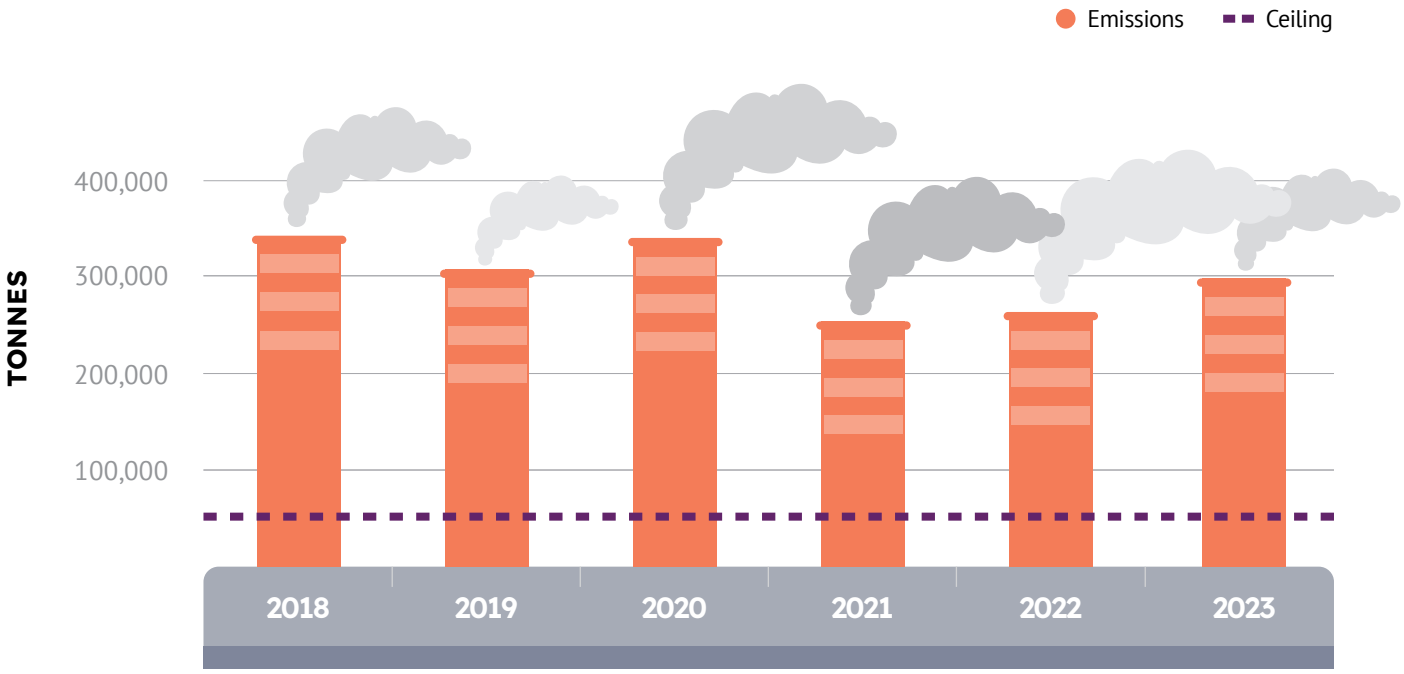
122 Renewables and Environmental Regulatory Institute (RERI), 'Historic ruling: Serbia's state energy supplier must slash toxic plant emissions nationwide', *Renewables and Environmental Regulatory Institute (RERI)*, November 2022.

123 The NERP also includes gas-fired units, such as those owned by NIS in Novi Sad and Pančevo, as well as a refinery. Ministry for Environmental Protection of the Republic of Serbia, Nacionalni plan za smanjenje emisija glavnih zagađujućih materija koje poticu iz starih velikih postrojenje za sagorevanje, Annex 2, *Ministry for Environmental Protection of the Republic of Serbia*, February 2020.

Kostolac B power plant, Serbia
Photo: CEE Bankwatch Network

Figure 18:

Sulphur dioxide emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023



On the plant level, the most staggering increase was at the Nikola Tesla B plant (B1 and B2), which ran for only 58 more hours than in 2022, but whose SO_2 emissions increased from 73,012 tonnes to a jaw-dropping 92,260 tonnes, making it the second worst absolute SO_2 emitter in the region after Ugljevik.

Nikola Tesla B was followed by Nikola Tesla A4-A6, which emitted 58,551 tonnes.[124] Kostolac A2 emitted 28,132 tonnes, or 10.52 times as much SO_2 as allowed under its individual ceiling, which made it the country's worst offender in terms of individual ceiling breaches.

Although Kostolac B's desulphurisation equipment finally received an operating permit in January 2023,[125] it brought little relief. In 2023, the plant emitted 45,803 tonnes of SO_2 – nearly 10,000 more tonnes than in 2022, despite a similar number of operating hours. This represented 5.76 times more than it was allowed to emit under its NERP ceiling.

The operational permit for wastewater treatment from the de-SO_x was only granted in May 2024, which may help explain why the desulphurisation plant was not operating regularly. It remains to be seen whether it will now do so.

Dust emissions are within Serbia's national NERP ceiling and have been gradually declining since 2018. However, in 2023 Kostolac A2 emitted 1.5 times its individual ceiling, and Nikola Tesla A1-A3 emitted over 1.4 times more than allowed.

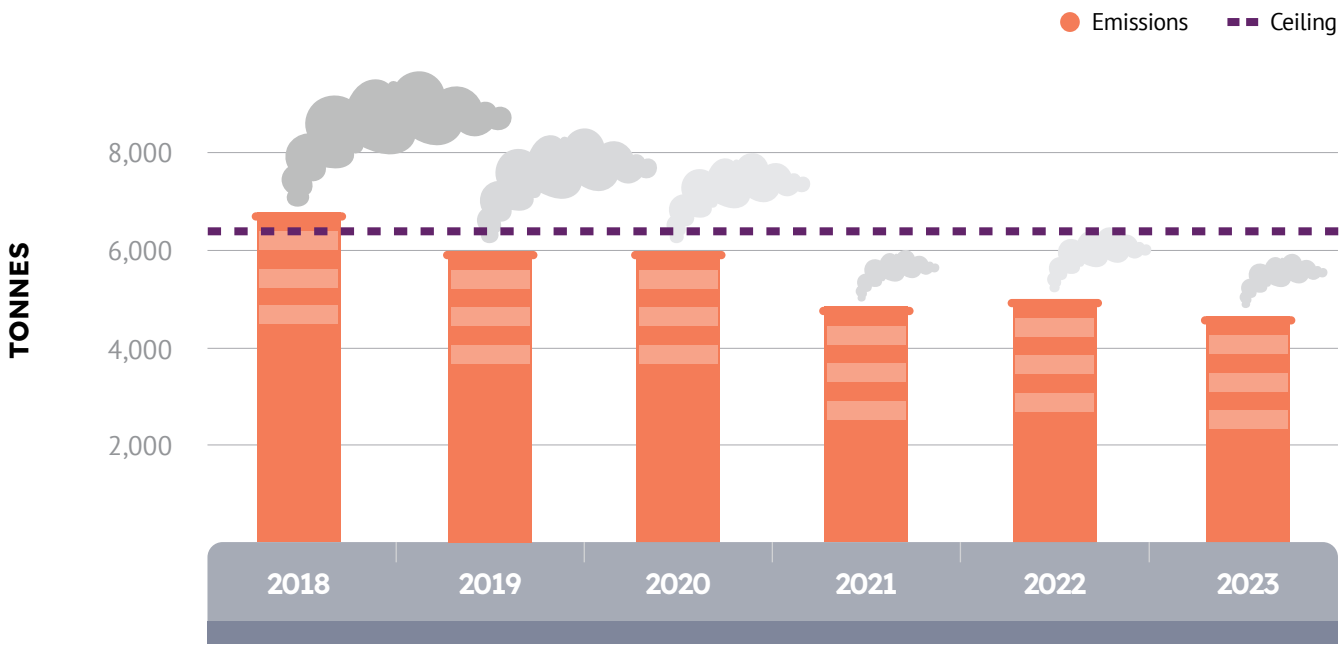
The Vreoci heating plant also exceeded its individual ceiling, emitting 2.9 times more than allowed.

124 European Environment Agency, EIONET Central Data Repository, *European Environment Agency*, 30 March 2024. Data not yet verified by the European Environment Agency.

125 Ministry of Construction, Transport and Infrastructure of the Republic of Serbia, Operating permit de-SO_x, *Ministry of Construction, Transport and Infrastructure of the Republic of Serbia*, 11 January 2023.

Figure 19:

Dust emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023



NO_x emissions in Serbia saw a slight increase in 2023 compared to the downward trend observed in all previous years. Coupled with a decrease of the overall ceiling, this resulted in a breach of the NO_x ceiling, with emissions at 1.13 times as much as allowed. At this pace, Serbia may be set for a new infringement procedure by the Energy Community Secretariat for failing to comply with its NO_x ceiling, in addition to the existing dispute opened in 2021 for non compliance with its SO_2 ceiling.[126]

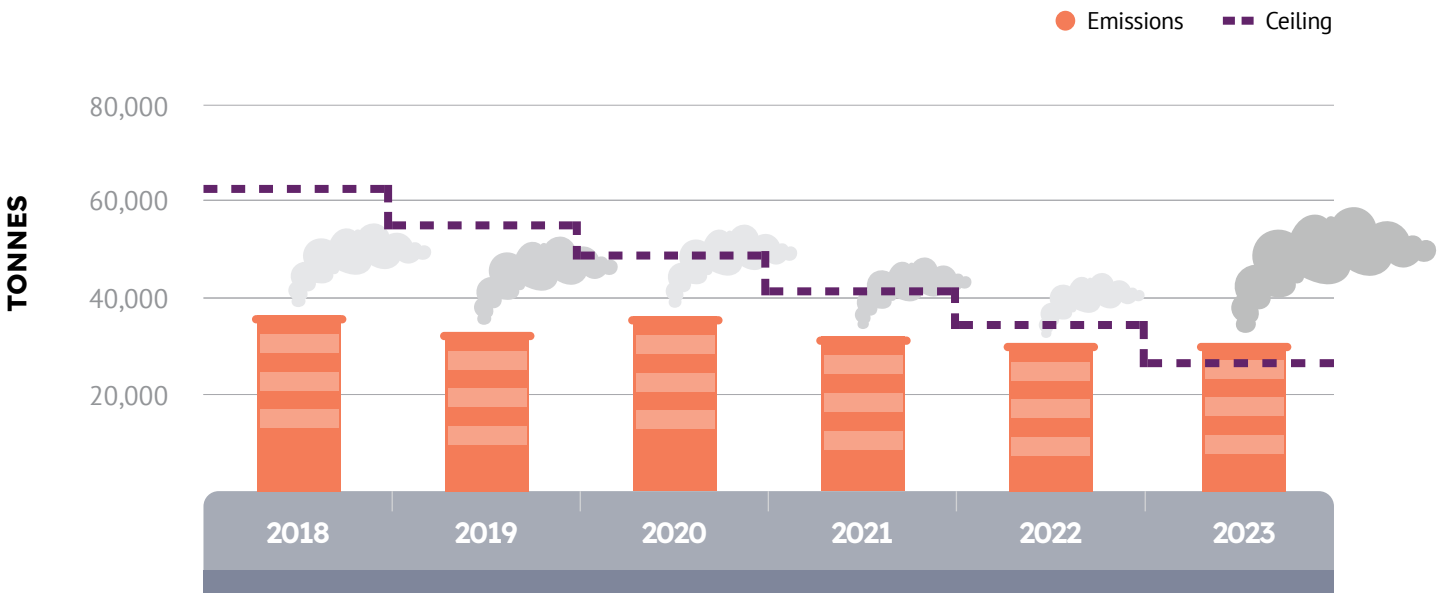
Regarding individual units, the worst offender for NO_x in absolute terms was the Nikola Tesla B plant (units B1 and B2), with 11,633 tonnes emitted – 1.4 times as much as the individual ceiling. The A3-A6 units of Nikola Tesla A emitted much less (6,348 tonnes), but still exceeded the plant's ceiling. Together, these were enough to bring the country into non-compliance with its NERP NO_x limits.

[126] Energy Community Secretariat, Case ECS 10/21, *Energy Community*, accessed 10 July 2024.

Drmno mine, Serbia
Photo: CEE Bankwatch Network

Figure 20:

Nitrogen oxides emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2023



Serbia (2023)

SO_2 ceiling	SO_2 emissions	Dust ceiling	Dust emissions	NO_x ceiling	NO_x emissions
54,575	296,011	6,390	4,492	27,105	30,625

EPS' record profits[127] paid for by people's health

Compared to 2022, when Serbia was ridden by a multi-pronged energy crisis – unplanned power plant outages, coal supply problems, low hydrological resources – last year saw EPS reaping an unprecedented profit of nearly EUR 1 billion.[128] EPS's new management attributes this to favourable hydrology, lower coal import prices, higher electricity sales prices and operational efficiency improvements.[129] But the reality is that the company's illegal operation of opt-out plants, failure to use the de-SO_x equipment at Kostolac B, a lack of carbon pricing, and general failure to internalise external costs borne by the environment and human health give the appearance of a profitable business.

Serbia kept its antiquated Morava power plant running for 3,867 hours in 2023, in breach of the 'opt-out' derogation. In June 2023, RERI and Bankwatch submitted a complaint[130] to the Energy Community Secretariat because of this, and the Secretariat opened a case against Serbia in October 2023.[131]

In addition, by the end of 2023, Serbia had breached the opt-out derogation for two more units at the Kolubara power plant. Units A3-1 and A3 3-5 both had just slightly more than 1,000 operating hours left at the end of 2022,[132] and they both worked way beyond their lifetime in 2023, adding 3,215 hours and 2,829, respectively. Kolubara A5 did not use up all its 20,000 hours by the end of 2023 but was due to close anyway due to the expiry of the opt-out period.

127 Vladimir Spasić, 'Serbia's EPS posts record EUR 1 billion profit for 2023', *Balkan Green Energy News*, 20 March 2024.

128 Ibid.

129 Elektroprivreda Srbije, Izveštaj o realizaciji trogodišnje plana poslovanja Grupe EPS za period 01.01.-31.12.2023., *Elektroprivreda Srbije*, February 2024.

130 Energy Community Secretariat, Case ECS-09/23, *Energy Community*, accessed 10 July 2024.

131 Energy Community Secretariat, 'Secretariat launches dispute settlement procedure against Serbia for breaching the Large Combustion Plants Directive in the case of TPP Morava'.

132 Energy Community Secretariat, Serbia Annual Implementation Report 2023, *Energy Community*, 12, November 2023.

In early 2023, EPS announced it would close the Kolubara and Morava plants only at the end of 2024,[133] but later extended this to 2026.[134]

After a request by law NGO RERI to the environmental inspectorate within the Ministry of Environmental Protection to undertake extraordinary inspections, it carried out multiple visits and determined that Morava and Kolubara A are breaching the relevant emission limit values, and are operating illegally by exceeding 20,000 hours. It ordered measures to comply with the limit values, but EPS did not comply. In October 2023, the Ministry of Environmental Protection therefore informed the Ministry of Mining and Energy of the breaches and requested it to enforce the Energy Community Treaty.

Ongoing investments in pollution control

During 2023, the desulphurisation unit at Kostolac B1 and B2 remained Serbia's only such installation, but as described above, its performance appears to be a failure considering the plant was still emitting 5.76 times as much as its individual SO_2 ceiling. From 1 January 2028 onwards, the plant has to comply with the stricter emission limit values of the Industrial Emissions Directive, something that seems highly unlikely at the moment.

In April 2024, it was reported that the EUR 215 million desulphurisation unit at Nikola Tesla A3-A6 had been commissioned,[135] 13 years after securing funding.[136] From the Kostolac B experience, it remains to be seen what this will mean for the plant's SO_2 emissions in reality.

The start of works to fit desulphurisation equipment at Nikola Tesla B – the country's second highest SO_2 emitter after Kostolac B – was announced in December 2020, with a deadline of 2024.[137] Yet its environmental impact assessment was approved only in March 2022.[138] EPS reported that the works were 60.52 per cent complete at the end of 2023,[139] and in April 2024 it was reported that its completion is expected only at the end of 2025.[140]

For Kostolac A, EPS launched a bid for a feasibility study for a desulphurisation installation[141] in October 2020, with the aim of extending the plant's lifetime by 15 years.[142] However, in 2022 the company started to reconsider this decision and lean towards a shut-down,[143] as was, in fact, the original plan when the NERP was first drafted in 2016. In 2023, it was announced that the plant would close at the end of 2028.[144] Due to lack of investments in pollution control, it is unlikely that its emissions will decrease before this. There is also a danger that, like Morava and Kolubara A, its closure will be delayed, further extending its pollution breaches.

Regarding nitrogen oxides, some work has been done at Kostolac B2, with a system for primary measures installed in 2019 and a tank for ammonia liquor as a secondary measure installed in 2023.[145] The results are not yet clear.

Overall, although EPS is gradually installing pollution control equipment at its plants, the projects have either been ineffective, as with the de-SO_x at Kostolac B, or are several steps behind the legal and economic reality. In 2023, EPS presented a Go Green Road plan,[146] which seems to include closure plans for a few of the smallest and oldest units, but as of the end of July 2024, it has still not been published.

But for its largest units, it has sunk massive amounts of funds into desulphurisation. This is on one hand needed as these plants cannot close immediately and they cannot continue to pollute at the current levels. But they are also expensive and energy-consuming, thus rendering the plants even less efficient. EPS will certainly pay the price for its slow uptake of wind and solar as coal becomes ever less competitive once CBAM or other carbon pricing sets in.

It is unclear whether Serbia as a whole has a plan to tackle this, as its draft NECP, published in mid-2023, was of poor quality and difficult to decipher.[147] Its final NECP was approved in late July 2024, but as of 29 July was not available to the public.

133 Vladimir Spasić, 'EPS sets out plan for shutting down coal power plants'.

134 Elektroprivreda Srbije, Трогодишњи план пословања Акционарског друштва „Електропривреда Србије", Београд за период 2024-2026.г. - ИЗВОД, *Elektroprivreda Srbije*, January 2024.

135 Igor Todorović, 'Mitsubishi Power commissions desulfurization system in Serbia's TENT A coal plant'.

136 Svetlana Jovanović, 'Construction launched on flue-gas desulfurization systems at coal-fired power plant TENT A', *Balkan Green Energy News*, 14 February 2019.

137 Vladimir Spasić, 'SO_2 emissions from Nikola Tesla B coal plant to be reduced 20 times by 2024', *Balkan Green Energy News*, 2 December 2020.

138 Elektroprivreda Srbije, 2023 Environmental Report, *Elektroprivreda Srbije*, 77, April 2024.

139 Ibid.

140 Igor Todorović, 'Mitsubishi Power commissions desulfurization system in Serbia's TENT A coal plant'.

141 Nina Domazet, 'EPS namjerava produžiti život TE Kostolac A', *Energetika-net*, 19 October 2020.

142 Vladimir Spasić, 'EPS plans to extend lifespan of TPP Kostolac A until 2038', *Balkan Green Energy News*, 15 October 2020.

143 Vladimir Spasić, 'EPS considering shutdown of coal power plant Kostolac A', *Balkan Green Energy News*, 29 July 2022.

144 Vladimir Spasić, 'EPS sets out plan for shutting down coal power plants'.

145 Elektroprivreda Srbije, 2023 Environmental Report, 77.

146 Vladimir Spasić, 'EPS sets out plan for shutting down coal power plants'.

147 Pippa Gallop, 'Serbia's draft NECP: What is the actual plan?', *CEE Bankwatch Network*, 17 July 2023.

Conclusions and recommendations

The pollution levels from Western Balkan coal plants six years after the deadline for the implementation of the LCPD remain astonishingly high.

In 2023, emissions of all three regulated pollutants were once again in breach of the ceilings set in the NERPs for Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia.

Moreover, SO_2 emissions increased regionally, while dust and NO_x emissions decreased only by a negligible amount.

SO_2 pollution from the NERP coal plants was 5.7 times as much as allowed, compared to 5.6 in 2022. Dust pollution was 1.75 times as much as allowed, compared to 1.8 times in 2022; NO_x pollution was 1.3 times as much as allowed, compared to a slight exceedance in 2022. The latter was due to the NO_x ceilings tightening annually, as well as a lack of emissions reduction.

While the Energy Community Secretariat has opened cases on all the breaches, and CBAM is likely to hasten the demise of coal in the region, more pressure is needed, both domestically and from the EU institutions. This is a matter of both human health and fundamental rule of law.

Too much time has already been wasted and there is a serious danger of an unplanned coal phase-out brought on by technical failures and economic realities. It is particularly worrying that none of the Western Balkan countries delivered their final NECPs to the Energy Community by the June 2024 deadline,[148] as a clear and decisive plan is desperately needed.

Recommendations

The Western Balkan governments must finally start to govern and stop letting energy utilities endlessly extend their own deadlines. The need to cut pollution and ramp up energy efficiency and sustainable forms of renewable energy is greater than ever.

Commitments already made need to be honoured. Plants operating under the opt-out regime must close promptly,[149] and North Macedonia needs to avoid further delays to its coal phase-out date and redouble efforts to be ready for it.

The countries' final and/or updated NECPs need to contain realistic plans for the other plants in the coming years, based on their real technical condition, the level of investment required to bring them into compliance, and the availability of lignite of reasonable quality. The CBAM's effects also need to be taken into account, as these will impact on coal plants' operations, particularly in Bosnia and Herzegovina, Montenegro and North Macedonia.[150] In theory, countries can obtain exemptions if they satisfy conditions such as market coupling, introducing emissions trading systems and compliance with relevant EU legislation, but with the progress made so far, it cannot be assumed that this will happen.

In the meantime, plants' operating hours need to be reduced to keep pollution to a minimum. Demand can also be reduced by other measures, both short-term and more systematic such as reducing distribution losses, insulating buildings, and the use of efficient heat pumps for heating instead of electrical resistance heaters.

It is most urgent to ensure that the Ugljevik and Kostolac B desulphurisation units function properly. Ongoing investments in desulphurisation and dust control equipment also need to be speeded up where they will pay off, and in the meantime, operating hours need to be reduced to decrease the pollution burden. The disposal of waste and wastewater treatment resulting from desulphurisation needs to be resolved in a timely and well-planned manner, especially given the high risks of future environmental pollution.

[148] Or updated NECPs in the case of North Macedonia and Albania. In late July, Serbia adopted its NECP, but as of 29 July it is not yet publicly available.

[149] The other option is to undergo major reconstruction to comply with the emission limit values for new plants under the Energy Community Treaty, but we are sceptical that this would be economically feasible in the majority of cases.

[150] CEE Bankwatch Network, The Western Balkan Power Sector - Between crisis and transition.

Although the main responsibility is clearly with the Western Balkan governments, EU institutions need to step up their action as well. Financing is needed for a just transition of coal regions and transition to sustainable district heating, and the Energy Community Treaty needs to have stronger enforcement tools, for the benefit of human health and the environment. Its dispute settlement mechanism must be strengthened to include dissuasive penalties for breaches.

To all the Western Balkan governments

- Immediately close the opt-out plants.
- Reduce operating hours for non-compliant plants in order to comply with the NERP emissions ceilings until pollution control equipment is functioning or the plants are closed.
- Publish National Energy and Climate Plans with clear and transparent plans for the phased closure of all coal plants and overall coal and fossil fuel phase-out dates. The plans must take into account the likely impacts of carbon pricing and/or the Carbon Border Adjustment Mechanism in the coming years.
- Ramp up investments in solar, wind, energy efficiency measures and improvements in grids to cut losses and allow more connection of renewables, as well as the use of efficient heat pumps for households instead of electrical resistance heaters, in order to minimise the need to keep old coal plants online. Increase environmental scrutiny and public participation to minimise public resistance to solar, wind and grid investments.
- Increase the amount of attention given to bottom-up participatory planning for a just transition at those coal plants and mines which will close first.

To the Bosnia and Herzegovina authorities

- At the very minimum, impose dissuasive penalties on EP BiH for illegally operating the Tuzla 4 and Kakanj 5 units, and if still operating, also Tuzla 3.
- Impose penalties on EP BiH and ERS for breaches of the NERP ceilings.
- Immediately cancel the decision to extend the lifetime of Tuzla 4 and Kakanj 5 and close the plants.
- Immediately reduce the operating hours of all plants that are breaching their NERP ceilings.
- Take further action to reduce dust emissions at Gacko, whether by reducing operating hours or installing new equipment, based on a realistic assessment of the plant's remaining lifetime.
- Immediately ensure continuous desulphurisation at Ugljevik. Undertake real-time monitoring to ensure that the desulphurisation is being used at all times.
- Speed up the desulphurisation investments at Kakanj 7 and Tuzla 6 for which investment decisions have already been taken, while adequately tackling corruption allegations.
- In the final Integrated Energy and Climate Plan, set the earliest possible closing dates for Gacko, Kakanj 6 and Tuzla 5, as it is unlikely that substantial investments in pollution control will prove feasible for these units.
- When carrying out environmental impact assessments for emissions reduction measures, ensure that the EIA studies contain detailed information on the technology to be used, what is to be done with by-products, and the expected results in terms of emissions reductions.
- Cancel the planned new Ugljevik III and Gacko II coal power plants.

To the Kosovo authorities

- At the very minimum, impose dissuasive penalties on KEK for its breaches of the NERP emissions limits.
- Urgently reduce dust emissions from Kosova B, initially by reducing operating hours to meet the plant's ceilings until the modernisation project is complete. Publish updated information on the project's status.

- Immediately reduce the operating hours of all units to bring them in line with their NERP ceilings and start closing Kosova A, unit by unit, as it seems unlikely that further investments in pollution control would be economically justifiable.
- In the final National Energy and Climate Plan, set the earliest possible closing dates for Kosova A and Kosova B. Based on this, re-assess the feasibility of further pollution control investments.
- Speed up retrofitting works to bring dust and NO_x emissions at Kosova B into compliance.
- Ensure the speedy completion of the project to improve continuous monitoring at Kosova B.

To the Montenegro authorities

- At the very minimum, impose dissuasive penalties on EPCG for illegally operating the Pljevlja coal plant.[151]
- Develop a plan B in case the Pljevlja modernisation does not go as planned.
- Use the NECP process to develop a coal phase-out year that is more realistic than 2035.

To the North Macedonia authorities

- At the very minimum, impose dissuasive penalties on ESM for breaches of the NERP ceilings.
- Formalise the closure of REK Oslomej and TEC Negotino.
- Avoid further delays for the planned coal phase-out and do not open new coal mines.
- Urgently address the lack of continuous monitoring in the large combustion plants.
- Reduce SO_2 and dust pollution from the Bitola power plant by keeping operating hours as low as possible to comply with ceilings until the plant is closed.

To the Serbia authorities

- At the very minimum, impose dissuasive penalties on EPS for illegally operating the Morava and Kolubara coal plants.
- Urgently clarify to the public why the Kostolac B SO_2 emissions continue to be so high in spite of a de-SO_x unit being installed and what is being done to fix this.
- Publish emissions data in real time online.
- The new Kostolac B3 unit must not start commercial operations unless it complies with the LCP BREF standards.[152]
- Ensure the timely and effective completion of the ongoing project to fit desulphurisation equipment at Nikola Tesla B1 and B2. Ensure that wastewater treatment and continuous disposal of gypsum are operational before completion, to avoid delays with operating the desulphurisation once online.
- Considering that investments in desulphurisation are now completed or underway at Serbia's main coal plants, the focus for the remainder of the plants should now be on planning for closure and just transition for the workers and wider regions depending on the plants.

[151] The changes to the Law on Industrial Emissions in December 2022 do not make its operation less illegal – see the 2023 *Comply or Close* report for more details.

[152] We recommend not commissioning this plant, for climate, health and economic reasons; however, the recommendation listed is derived from the contents of this report.

To the Energy Community

- The Secretariat should continue to assist the Contracting Parties in finalising their National Energy and Climate Plans, ramping up investments in sustainable forms of renewable energy, introducing carbon pricing, phasing out coal subsidies and preparing for a just transition.
- Given the lack of improvements and breach on nitrogen oxides in 2023, we call on the Secretariat to issue a reasoned opinion on Serbia regarding its NERP breaches and finalise the other ongoing NERP and opt-out cases.
- We call on the Advisory Committee to issue opinions on the Pljevlja case and outstanding NERP cases.

To the European Commission and EU Member States

- Support the strengthening of the Energy Community Treaty to ensure dissuasive penalties in cases of non-compliance.
- Secure additional, dedicated funding for a just transition of coal regions in the Western Balkans.
- Ensure that the potential exceptions from CBAM under Article 2(7) of the Regulation are stringently applied to the Western Balkan countries.
- Withhold financing for projects related to electricity interconnectors and other projects that might aid non-compliant plants in selling their electricity to the EU.
- Ensure that EU and international finance does not support gas, in order to avoid creating further fossil-fuel lock-in.

Annex 1

Materials and methods

The emissions of Western Balkans coal power plants were collected from the EIONET Central Data Repository. Data for 2023 will only be verified by the European Environment Agency within the next few months. Where available, we have used verified emissions figures from the European Environment Agency for the period from 2018 to 2022, which may lead to some figures being somewhat different than those quoted in previous Comply or Close reports because of having been updated. The National Emission Reduction Plans used are official documents published by each of the countries. The overall country level ceilings used as reference include, in some cases (e.g. Serbia), emissions ceilings from other facilities that are not coal power plants (e.g. refineries), which explains why in those cases the national ceilings are higher than the sum of individual coal power plants' ceilings.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