



2023 UPDATE

COMPLY or Close

Five years of deadly legal breaches
by Western Balkan coal plants

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Bankwatch
Network

JUNE 2023



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This publication has been financed by the Swedish International Development Cooperation Agency, Sida. Responsibility for the content rests entirely with the creator. Sida does not necessarily share the expressed views and interpretations.

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Comply or Close 2023

Five years of deadly legal breaches
by Western Balkan coal plants

*Pljevlja power plant, Montenegro
Photo: CEE Bankwatch Network*



Glossary

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/Nm³.

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

SO₂ – Sulphur dioxide

Executive summary

The end of 2022 marked five years since new air pollution standards entered into force in the Western Balkans on 1 January 2018. Yet the deadly air pollution from the region's mostly antiquated coal power plants has hardly decreased at all. In fact, in 2022 it increased compared to 2021 for all three regulated pollutants – sulphur dioxide (SO₂), dust and nitrogen oxides (NO_x). And for the first time, the overall regional ceiling for NO_x was breached.

In 2022, SO₂ emissions from plants included in the National Emissions Reduction Plans (NERPs)¹ of Bosnia and Herzegovina (BiH), Kosovo, North Macedonia and Serbia were 5.6 times as high as allowed – higher than in 2021 and only slightly lower than they were from 2018 to 2020, when they were six times as high as allowed.

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

Total emissions of nitrogen oxides also slightly exceeded the combined regional total ceiling for the first time, due to a combination of lack of investments in NO_x reduction, increased absolute emissions and the decreasing ceilings in the NERPs. Kosovo and Bosnia and Herzegovina both exceeded their ceilings. The pollution limits for NO_x continue to decrease annually, so more breaches are likely in the coming years unless swift action is taken.

In 2022, Serbia's NERP coal plants were the highest SO₂ emitters in absolute terms, with 261,207 tonnes, followed by Bosnia and Herzegovina with 182,667 tonnes. Serbia's NERP plant SO₂ emissions increased compared to 2021, while Bosnia and Herzegovina's stayed almost the same.

But for the first time since the LCPD entered force, North Macedonia's Bitola B1+2² was the unit with the highest SO₂ emissions in the region – an astonishing 111,408 tonnes – almost double its 2021 emissions.

This is 17 times as much as allowed by its indicative unit-level ceiling,³ and it single-handedly breached the sum of all the region's NERP ceilings for SO₂. The reasons for this drastic increase are not clear, but the use of a different kind of coal may have contributed.

Long-standing offender Ugljevik in Bosnia and Herzegovina barely reduced its SO₂ emissions in 2022 – they amounted to 85,526 tonnes. Again, the desulphurisation equipment clearly did not work on a regular basis, despite testing having reportedly finished successfully in August 2022. It remains to be seen when and whether the benefits of this EUR 85 million investment will ever be felt.

Kostolac B, one of the highest absolute and relative SO₂ emitters from 2018 to 2020, had finally started to decrease its emissions in 2021 during testing of its desulphurisation equipment, but increased them again from 26,015 tonnes in 2021 to 36,560 tonnes in 2022. This meant it emitted more than four and a half times as much SO₂ as allowed.

Bitola B1+2 was the highest regional dust polluter, with 3,899 tonnes in 2022 – almost double its emissions in 2021, and nearly five times as much as allowed.

Dust emissions from the Gacko plant in Bosnia and Herzegovina also remained alarmingly high in 2022, at 3,649 tonnes – 12 times as much dust as allowed. The plant operator has also recently announced plans to burn refuse-derived fuel, i.e. waste, in the plant.

Kosova B units 1 and 2 are also major dust polluters; both emitted over six times as much as allowed in 2022, showing hardly any improvement over 2021.

For nitrogen oxides, Kakanj 7 in Bosnia and Herzegovina had the highest exceedance in 2022, emitting more than twice as much as allowed – 3,344 tonnes – though several other plants emitted much more in absolute terms.

In addition to the NERP breaches, under the pretext of the various crises of recent years (COVID-19, gas and electricity import price crises), all three countries in the Western Balkans with coal power plants subject to the 'opt-out' derogation now have at least one plant violating this provision. These also contributed to the increases in the region's massive coal pollution in 2022 but are not even part of the NERP plant 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 and then by Serbia.

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 The units emit through a common stack and are reported jointly.

³ Only national ceilings are binding, but individual ones give a good idea of where particular action is needed.

In March 2022, the Federation of Bosnia and Herzegovina's parliament voted to illegally extend the lifetime of the Tuzla 4 and Kakanj 5 coal power plants beyond their allowed opt-out hours without undertaking additional pollution control measures.

Serbia's antiquated Morava plant also operated beyond its 20,000 hours limit in 2022, and its operator, Elektroprivreda Srbije (EPS), has stated that it will close only in 2024.

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 the breaches of the NERP pollution limits, in March 2021 the Energy Community Secretariat opened dispute settlement cases against BiH, Kosovo, North Macedonia and Serbia.⁴ In February 2022 it took the next step forward in the process by issuing reasoned opinions against Bosnia and Herzegovina, Kosovo and North Macedonia.⁵ The case against Serbia remains open but did not escalate.

The Secretariat also opened a dispute settlement case against Montenegro in April 2021,⁶ for breaching the 20,000-hour opt-out limit for the Pljevlja plant. In October 2022, this was followed by the Secretariat opening a second case against Bosnia and Herzegovina regarding the Tuzla 4 and Kakanj 5 opt-out breaches.⁷

However, these flagrant breaches show no sign of ending soon, as uncertainties regarding electricity supply persist in North Macedonia and Kosovo, with Bitola B3 having been offline for over a year, Kosova A5 only re-starting operations in May 2023 after being offline since July 2022, and both units of Kosova B undergoing repairs this year as well. Such difficulties highlight the urgency of a sustainable energy transition, but they also suck massive financial resources and distract decision makers and utilities even further from public health and the environment.

All the Western Balkan countries have to submit their draft National Energy and Climate Plans (NECPs) to the Energy Community Secretariat by the end of June 2023, which should finally clarify their plans for their coal power plants to comply or close.

Albania and North Macedonia already adopted their NECPs in 2021 and 2022 respectively, but both are expected to update them. North Macedonia, previously a regional energy transition leader but now home to the region's most polluting coal plant, has already suggested it may delay its coal phase-out from 2027 to 2030 and is planning new coal mines. Any update of its NECP needs to put it back on track.

As of mid-June 2023 – Serbia has published a draft NECP for consultation but Bosnia and Herzegovina, Kosovo, and Montenegro still have not.

The pollution levels after five years of the Large Combustion Plants Directive in the Western Balkans are utterly unacceptable. The Western Balkan governments must finally get a grip on the situation and stop letting energy utilities make their own rules. The need to cut pollution and ramp up energy efficiency and sustainable forms of renewable energy is greater than ever. Due to the lack of timely action in previous years, everything needs to be done at double speed now.

Commitments already made need to be honoured. Plants operating under the opt-out regime must close promptly,⁸ and North Macedonia needs to stick to its 2027 coal phase-out date and redouble efforts to be ready for it.

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.⁹

In the meantime, their operating hours need to be reduced, to keep pollution to a minimum. Security of supply is crucial, but as Kosovo showed this winter, demand can also be reduced by other measures, both short-term and more systematic such as reducing distribution losses, insulating buildings, and 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.

More broadly, the European Union must equip the Energy Community Treaty with 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.

⁴ Energy Community Secretariat, [Secretariat initiates dispute settlement procedures against four Contracting Parties in relation to NERPs](#), *Energy Community*, 16 March 2021.

⁵ 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.

⁶ 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.

⁷ 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.

⁸ 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.

⁹ CEE Bankwatch Network, [The Western Balkan Power Sector - Between crisis and transition](#), *CEE Bankwatch Network*, December 2022.

Introduction

Since the Large Combustion Plants Directive (LCPD) entered into force under the Energy Community Treaty as of 1 January 2018, we have analysed the Western Balkan countries' compliance with their National Emissions Reduction Plans (NERPs) in four editions of the *Comply or Close* report. This year, we look at the non-compliance in 2022 compared to the previous four 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 (SO₂), 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.¹⁰ The NERP allows combustion plants to derogate from individual compliance with the emission limit values (ELVs) for existing plants set up 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 may 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 allows 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 is applied to units which will either be closed or completely refurbished to comply with the newer and slightly stricter ELVs for existing plants from Annex V, part I of the Industrial Emissions Directive at the end of the derogation period.

Coal plants which comply with the Large Combustion Plants Directive 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.¹¹

Taking action to reduce pollution is therefore imperative and long overdue. This fifth *Comply or Close* report looks at the official reported data for 2022 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.

¹⁰ Except Montenegro, which only has one large combustion plant and therefore cannot add up the total of several plants to make a national ceiling.

¹¹ CEE Bankwatch Network and Centre for Research on Energy and Clean Air (CREA), *Comply or Close*, September 2021.

Regional overview of pollutant emissions¹²

By 1 January 2018, 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 ensured that their coal power plants¹³ complied with the emission limit values from the Directive by the beginning of 2018, or even by the end of 2022, five years later. Nor did any of the four countries with NERPs – Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia – comply with all the ceilings for sulphur dioxide they had committed to in their plans.

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 2019.¹⁴ In February 2022 it took the next step forward in the process by issuing reasoned opinions against Bosnia and Herzegovina, Kosovo and North Macedonia.¹⁵ The case against Serbia remains open but did not escalate due to uncertainties about the impacts of ongoing investments into pollution control equipment.

Alarmingly, the total aggregated figures reported to the European Environment Agency¹⁶ by Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia for 2022 show an increase in the emissions of all three measured pollutants – SO₂, dust and NO_x – compared to 2021.

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

¹² 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.

¹³ Albania has no functional large combustion plants. The 98 MW oil and gas plant at Vlora has never worked commercially due to technical problems.

¹⁴ Energy Community Secretariat, [Secretariat initiates dispute settlement procedures against four Contracting Parties in relation to NERPs](#).

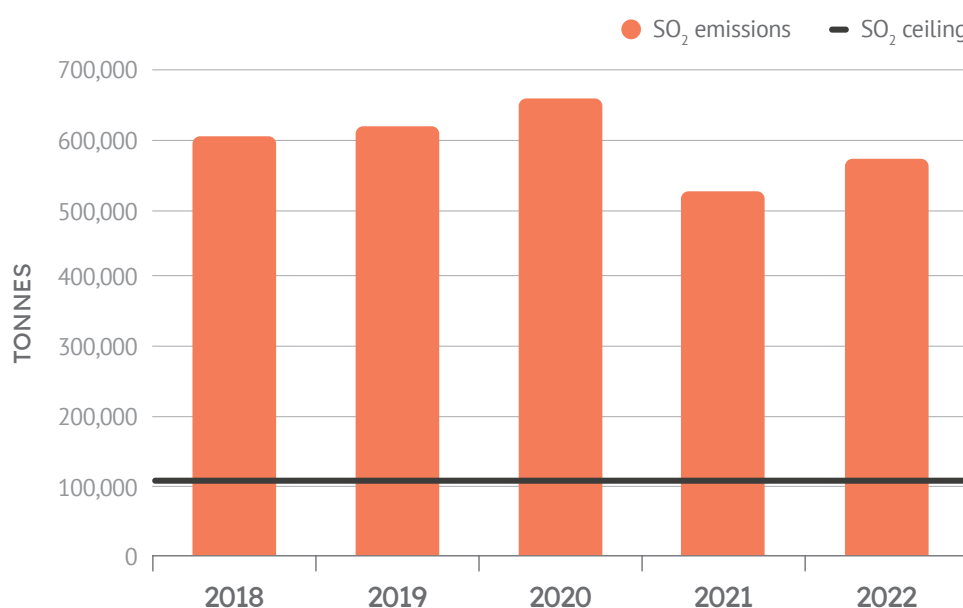
¹⁵ Energy Community Secretariat, [Secretariat brings forward cases against three Contracting Parties for not reducing air pollution from thermal power plants](#).

¹⁶ See [EIONET Central Data Repository](#) under the country name > European Union obligations > Reporting on combustion plants

¹⁷ Kosovo's SO₂ ceiling dropped slightly in 2021.

SO ₂	Emissions	Ceiling
2018	606,467	103,682
2019	621,553	103,682
2020	660,700	103,682
2021	531,466	103,518 ¹⁷
2022	577,684	103,518

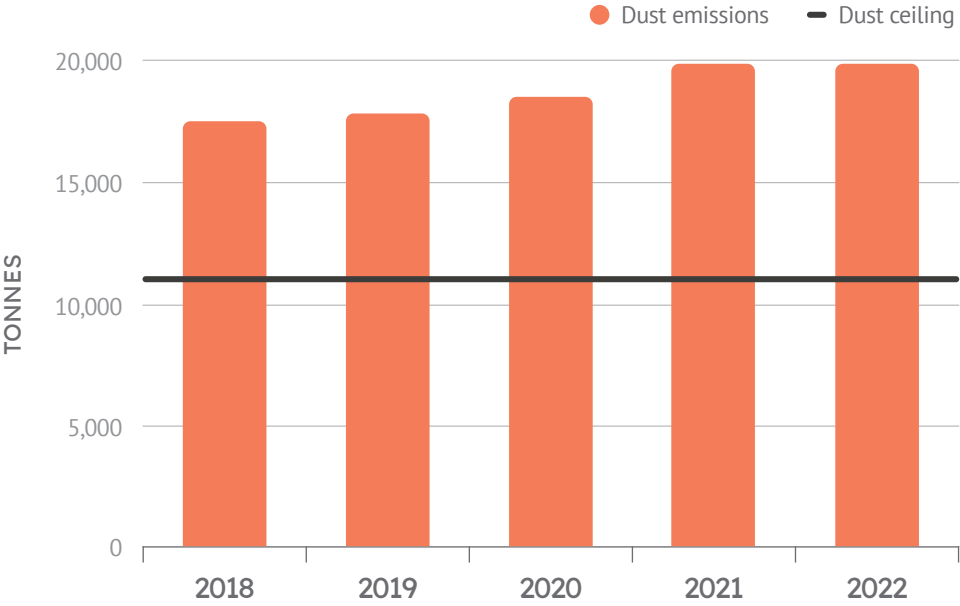
Figure 1: Sulphur dioxide emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022



Moreover, dust emissions also increased again slightly, and in 2022 were nearly 1.8 times as high as allowed by the countries' NERPs. Kosovo, Bosnia and Herzegovina and North Macedonia again greatly exceeded their national ceilings for dust.

Dust	Emissions	Ceiling
2018	17,414	11,200
2019	17,557	11,200
2020	18,246	11,200
2021	19,808	11,180 ¹⁸
2022	19,859	11,180

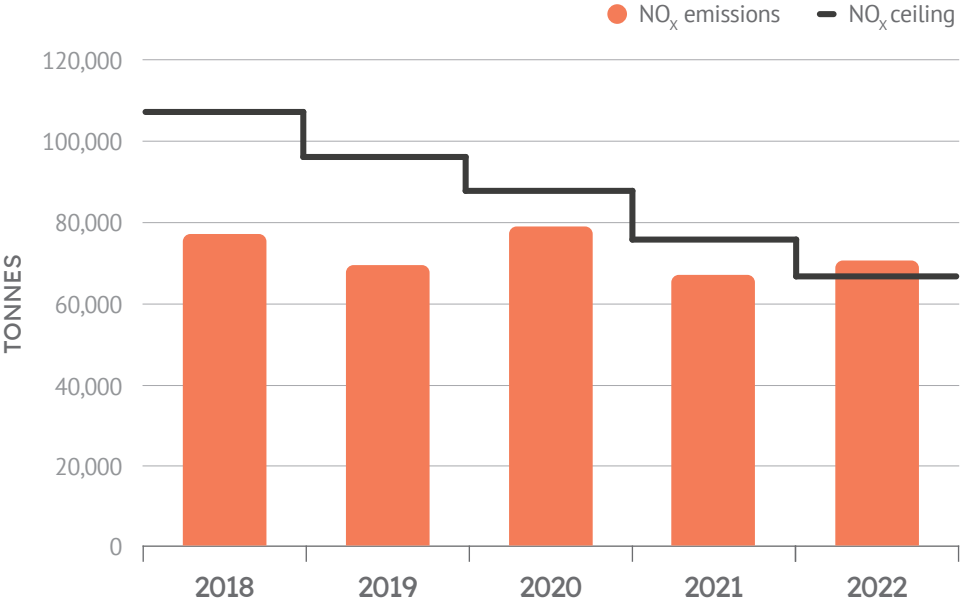
Figure 2: Dust emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022



In 2022, for the first time, total emissions of nitrogen oxides slightly exceeded the combined regional total ceiling. This was because there were no investments in NO_x reduction, absolute emissions increased and the ceiling decreased. Kosovo and Bosnia and Herzegovina were the main offenders in relative terms, and both exceeded their ceilings. With the annual ceilings tightening every year, more pronounced breaches are likely to occur for this pollutant in the coming years.

NO _x	Emissions	Ceiling
2018	77,068	107,353
2019	72,136	97,226
2020	79,694	87,100
2021	67,213	76,768
2022	70,767	66,641

Figure 3: Nitrogen oxides emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022



In fact, many of the figures provided by the power plant operators are estimates rather than the result of continuous monitoring. The Large Combustion Plants Directive¹⁹ 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.

¹⁸ Kosovo's dust ceiling dropped slightly in 2021.

¹⁹ Article 12 of the [Large Combustion Plants Directive](#)

In 2022, Serbia's NERP coal plants were the highest SO₂ emitters, with 261,217 tonnes, followed by Bosnia and Herzegovina with 182,667 tonnes. Serbia's NERP plant SO₂ emissions increased compared to 2021, when they emitted 249,859 tonnes of SO₂, while Bosnia and Herzegovina's stayed almost the same (184,092 tonnes in 2021).

In absolute terms, for the first time since the LCPD entered force, in 2022 Bitola 1&2²⁰ in North Macedonia was the highest-emitting unit for SO₂ in the region, emitting an astonishing 111,408 tonnes – not far from double the 60,925 tonnes it emitted in 2021.

Long-standing offender Ugljevik in Bosnia and Herzegovina barely reduced its SO₂ emissions in 2022. It emitted 85,526 tonnes, compared to 86,774 tonnes in 2021. Again the desulphurisation equipment clearly did not work on a regular basis during 2022, despite testing having reportedly finished successfully in August 2022 (see the Bosnia and Herzegovina profile for more details). It remains to be seen whether the benefits of this EUR 85 million investment will ever be felt.

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 terms of breaching individual ceilings for sulphur dioxide, Bitola 1&2 in North Macedonia was the worst offender in 2022. It emitted almost 17 times as much SO₂ as allowed.** It was followed by Kakanj 7 in BiH, which emitted nearly 12 times as much as allowed, then Ugljevik which emitted 9.4 times as much as allowed.

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 its SO₂ emissions increased in 2022, to 36,560 tonnes compared to 26,015 in 2021. Its desulphurisation unit, installed by the China Machinery Engineering Corporation (CMEC), was formally inaugurated in 2017, yet did not manage to obtain an operating permit until January 2023²¹ – even though 2021 and 2022 emissions figures show that the facility must have partly been in use. In 2022, it still emitted more than four and a half times as much SO₂ as the plant is allowed to emit under the NERP.

Concerning dust, the absolute highest emitter in the region was Bitola 1&2 in North Macedonia, with 3,899 tonnes – almost double its emissions in 2021, and nearly five times as much as allowed.

Dust emissions from the Gacko plant in Bosnia and Herzegovina also remained alarmingly high in 2022, at 3,649 tonnes. This was less than in 2021 (4,960 tonnes), but still more than double the dust emissions in 2020 (1,656 tonnes). This meant that it emitted no fewer than 12 times as much dust as allowed in 2022.

Other very high dust emitters in the region are Kosova B units 1 and 2, which both emitted over six times as much as allowed in 2022, showing hardly any improvement over 2021.

For nitrogen oxides, Kakanj 7 in Bosnia and Herzegovina had the highest exceedance in 2022, emitting more than twice as much as allowed – 3,344 tonnes.

However, several other plants emitted much more in absolute terms, particularly Nikola Tesla A4-A6 (9,176 tonnes) and Nikola Tesla B1-B2 (8,500 tonnes) in Serbia. However, although high, these emissions did not exceed the NERP ceiling.

Kosova B1 and B2 were also very high emitters – 7,521 and 7,032 tonnes respectively – which amounted to 1.8 and 1.7 times as much as allowed.

Going beyond the countries with NERPs, Montenegro continued to be in breach of the LCPD in 2022. By the end of 2020, the plant had already operated for 21,003 hours since 1 January 2018,²² but it did not stop there. For this reason, the Energy Community Secretariat opened a dispute settlement case against Montenegro in April 2021.²³ In 2021, the plant operated for 6,450 more hours,²⁴ and in 2022 for a further 6,949 hours.²⁵ In February 2023 the Energy Community Secretariat issued a reasoned opinion,²⁶ taking the case one step further towards a decision by the Ministerial Council.

Overall, on the regional level, five years after the LCPD entered into force in the Energy Community, the situation remains appalling. In 2022, emissions of sulphur dioxide, nitrogen oxides and dust emissions all increased instead of decreasing.

²⁰ The units emit through a common stack and are reported jointly.

²¹ Renewables and Environmental Regulatory Institute (RERI), [Desulphurisation in the Western Balkans](#), Renewables and Environmental Regulatory Institute (RERI), March 2023.

²² Operating hours from Montenegro reports to the European Environment Agency, EIONET, [Central Data Repository](#), for 2018, 2019 and 2020.

²³ Energy Community Secretariat, [Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'](#).

²⁴ European Environment Agency, EIONET, [Central Data Repository](#), reported 15 April 2022.

²⁵ European Environment Agency, EIONET, [Central Data Repository](#), reported 13 April 2023.

²⁶ 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.

Energy crisis continues to divert attention from tackling pollution

During the 2021-2022 and 2022-2023 winters, several Western Balkan countries – mainly Kosovo, North Macedonia, Serbia and hydropower-dependent Albania – suffered from electricity crises. These were due to technical and management problems at coal power mines and plants, combined with very poor hydrological conditions for hydropower and extremely high electricity import prices as a result of the wider European gas price crisis.

After Serbia's difficult winter of 2021-2022, with technical failures at the country's coal plants and mines, poor coal supply and electricity imports at high prices which put pressure on both the energy utility Elektroprivreda Srbije (EPS) and the state budget, the summer of 2022 came with hydropower production down 27 per cent compared to the previous year. Regulated electricity prices increased by 6.5 per cent in September 2022, while EPS signed import contracts with coal mines in Montenegro, Bulgaria, and Bosnia and Herzegovina during May and June of 2022.²⁷

North Macedonia continued using the antiquated Negotino heavy oil power plant which had not been used for twelve years prior to the crisis.²⁸ Electricity utility company AD ESM also continued non-transparent imports of lignite from the entire region, whose quality remains unknown to the public. Since the start of the crisis, the government has supported the work of AD ESM with in excess of EUR 400 million,^{29,30} finances mostly used to keep the power plants in operation through the import of lignite, heavy oil and fossil gas. As emissions data for 2022 show, this financing, close to 10 per cent of the government's overall budget, contributed to terrifying increases in pollution.

In December 2021, Kosovo suffered power shortages and rationing due to technical problems at the Kosova B plant.³¹ Unit B1 was back online within a few days, but B2 only returned to service in late January 2022, at which point the prime minister announced that this would save EUR 1.2 million per day at the then price levels.³² In July 2022, Kosova A5 was shut down for regular maintenance but was only re-opened in May 2023.³³ In August 2022, rationing was announced again. They were averted at the last minute by imports from Albania,³⁴ but at the end of the month it was announced that only one out of three units of the Kosova A plant was operating.³⁵ By 5 September, units A3 and B2 were back online,³⁶ bringing the total plants in operation to four out of five,³⁷ and the crisis abated.

Still, it was obvious that winter would bring new problems, due to the frequent use of electricity for heating in Kosovo. In September 2022, a subsidy was introduced for those who saved compared to the previous year,³⁸ as well as mandatory measures for energy saving in public buildings.³⁹ The measures appear to have had a positive impact, as overall electricity consumption was down by 8 per cent in 2022.⁴⁰ Still, with Kosova B2 offline for three months for repairs starting mid-April 2023 and Kosova B1 to follow for three months after that,⁴¹ the increasing unreliability of its coal plants coupled with its slow solar and wind investments is still causing problems for Kosovo.

Coal-dependent countries were not the only ones hit, however, as Albania stopped almost all state-owned hydropower generation in March 2022⁴² due to low water levels. Controversially, it hired floating oil-fired power plants, which arrived at Vlora in September 2022.⁴³ However, as of March 2023 it was reported that they were not yet functioning.⁴⁴

²⁷ European Bank for Reconstruction and Development, [Transition Report 2022-2023: Business unusual. Country assessment Serbia](#), European Bank for Reconstruction and Development, 2023.

²⁸ Dragana Petrushevska, ['N. Macedonia starts up TEC Negotino power plant - report'](#), SEENews, 16 December 2021.

²⁹ Davor Pehchevski, ['369 million euros of North Macedonia's public money going up in smoke'](#), CEE Bankwatch Network, 30 January 2023.

³⁰ [Screenshot](#) of the transfers from North Macedonia's state budget to AD ESM as budgetary support for their operations, as shown on the [Open Finance website](#), accessed 16 May 2023.

³¹ Fatos Bytyci, ['Kosovo introduces power cuts due to energy crisis'](#), Reuters, 22 December 2021.

³² Kosovo Energy, ['Kurti: Me kthimin në funksion të B2, Kosova do të kursejë nga 1.2 milion euro në ditë'](#), Kosovo Energy, 24 January 2022.

³³ Institute of Energy for South-East Europe, ['Kosovo A Thermal Power Plant 140 MW Unit Resumes Production After One Year Halt'](#), Institute of Energy for South-East Europe, 8 May 2023.

³⁴ Fatos Bytyci, ['Kosovo cancels power cuts for now after securing Albanian supplies'](#), Reuters, 15/16 August 2022.

³⁵ Alice Taylor, ['Kosovo's energy crisis takes another hit as power plant suffers technical problems'](#), Euractiv, 31 August 2022.

³⁶ Kosova Press, ['Blocks B2 and A3 are back in operation, electricity stabilization is expected'](#), Kosova Press, 5 September 2022.

³⁷ Kosovo Ministry of Economy, ['The overhaul of B2 and repairing of A3 are completed, the units are back in operation'](#), Kosovo Ministry of Economy, 1 September 2022.

³⁸ Uran Haxha, ['Winter will be difficult'](#), Kosovo 2.0., 20 October 2022.

³⁹ Kosova Press, ['The government calls for energy saving, Rizvanolli: The room temperature during the day should be 19 degrees'](#), Kosova Press, September 2022.

⁴⁰ Filip Derewenda, ['Kosovo sees energy consumption down by 8% in 2022, Minister says'](#), CEENERGYNEWS, 17 January 2023.

⁴¹ Genta Hodo, ['Kosovo A thermal power plant 140 MW unit resumes production after one year halt'](#), SEENews, 8 May 2023.

⁴² Fatos Bytyci, ['Albania dims lights as drought, price spike spark energy crisis'](#), Reuters, 21 March 2022.

⁴³ Alice Taylor, ['Albanians up in arms over oil burning power plants off coast of tourist hotspot'](#), Euractiv, 13 September 2022.

⁴⁴ Vox, ['They came with ceremony, but the floating TECs in Vlora do not have a day of work \(68 mln dollars will be paid anyway\)'](#), Vox, 8 March 2023.

On the one hand, these developments have highlighted the need to speed up the installation of wind and solar, and there have been moderate advances in this field, including the adoption of 2030 greenhouse gas emissions reductions, renewable energy and energy efficiency targets under the Energy Community Treaty in December 2022.⁴⁵ But progress in actual construction of new facilities in 2022 was rather patchy.

A December 2022 Bankwatch study identified large-scale solar projects under construction in Albania, wind and solar in Bosnia and Herzegovina and wind in Serbia, but did not manage to identify any such projects under construction in Kosovo, Montenegro and North Macedonia, despite some projects coming online during 2021 and numerous projects in the pipeline.⁴⁶

The crisis has also led to clear rollback in terms of pollution control, as governments scramble to secure electricity in whatever way possible, irrespective of public health and the law.

North Macedonia, while remaining committed to increasing renewables investment, has suggested it may delay its coal phase-out from 2027 to 2030 and is moving forward with opening new coal mines.⁴⁷

In addition to Montenegro's ongoing breach of the 'opt-out' derogation, in March 2022, the Federation of Bosnia and Herzegovina's parliament voted to illegally extend the lifetime of the Tuzla 4 and Kakanj 5 coal power plants (see Bosnia and Herzegovina section, below).

Serbia also joined them later in the year. In 2022, Serbia was running its antiquated plant, Morava, at almost full capacity, breaching its 'opt-out' derogation most likely already since mid-2022, considering it only had approximately 3,000 of its 20,000 operating hours remaining at the end of 2021.⁴⁸ To cement this non-compliance, in early 2023 EPS's representative was quoted⁴⁹ in the media stating that the company would close Morava and Kolubara A only by the end of 2024, thus showing a clear intention to consider breaching the law. Thus, all the Western Balkan countries with plants on the opt-out list – Serbia, Montenegro and Bosnia and Herzegovina – now have at least one plant in breach of their '20,000 operating hours' derogation.

Kosovo's energy strategy, adopted in March 2023, sets clear goals to increase renewables but – as discussed in the Kosovo section below – also appears to have been marred by the energy crisis,⁵⁰ planning modernisation works at both units of Kosova B, and at one or two of Kosova A's three functional units, at a cost of minimum EUR 390 million.⁵¹ While the government's caution is somewhat understandable given recent outages, this is an enormous sum to spend on propping up ancient coal plants and crowds out spending on the actual transition.

Such difficulties in the day-to-day operations of the power systems show the urgency of a sustainable energy transition. However in practice they are sucking resources and diverting decision makers' attention even further away from public health and the environment.

All the Western Balkan countries have to submit their draft National Energy and Climate Plans (NECPs) to the Energy Community Secretariat by the end of June 2023, which should finally clarify their plans for their coal power plants to comply or close.

Albania and North Macedonia already adopted their NECPs in 2021 and 2022 respectively, but both are expected to update them. North Macedonia, previously a regional energy transition leader but now home to the region's most polluting coal plant, has already suggested it may delay its coal phase-out from 2027 to 2030 and is planning new coal mines. Any update of its NECP needs to put it back on track.

As of mid-June 2023 – Serbia has published a draft NECP for consultation but Bosnia and Herzegovina, Kosovo, and Montenegro still have not.

⁴⁵ [Decision 2022/02/MC-EnC on amending Decision 2021/14/MC-EnC and incorporating Directives \(EU\) 2018/2001 and 2013/2002, Regulations \(EU\) 2018/1999, 2020/1044, and 2020/1208 in the Energy Community acquis](#).

⁴⁶ CEE Bankwatch Network, [The Western Balkan Power Sector - between crisis and transition](#).

⁴⁷ Mihajlo Vujasin, ['Environmentalists oppose lignite mine projects in North Macedonia'](#), *Balkan Green Energy News*, 5 April 2022.

⁴⁸ Energy Community Secretariat, [Annual Implementation Report Serbia](#), *Energy Community*, 15, November 2022.

⁴⁹ Vladimir Spasić, ['Plan gašenja termoelektrana u Srbiji'](#), *Balkan Green Energy News*, 16 February 2023.

⁵⁰ Pippa Gallop, ['Kosovo becomes the first Western Balkan country to stop promoting new hydropower'](#), *CEE Bankwatch Network*, 28 March 2023.

⁵¹ Kosovo Ministry of Economy, [Energy Strategy of the Republic of Kosovo 2022-2031](#).

Country profiles

Bosnia and Herzegovina (BiH)

Compliance with the NERP ceilings in 2022

Bosnia and Herzegovina's NERP⁵² covers seven coal-fired units⁵³ 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 5⁵⁴ – are 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 2022, Bosnia and Herzegovina's NERP coal plants, along with those in Kosovo, 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 2022, just as in 2021, sulphur dioxide emissions from the NERP plants in BiH reached more than eight times as much as allowed** – 182,667 tonnes, compared to the ceiling of 22,195 tonnes. This barely represented any decrease compared to 2021, when the NERP units emitted 184,092 tonnes of SO₂.

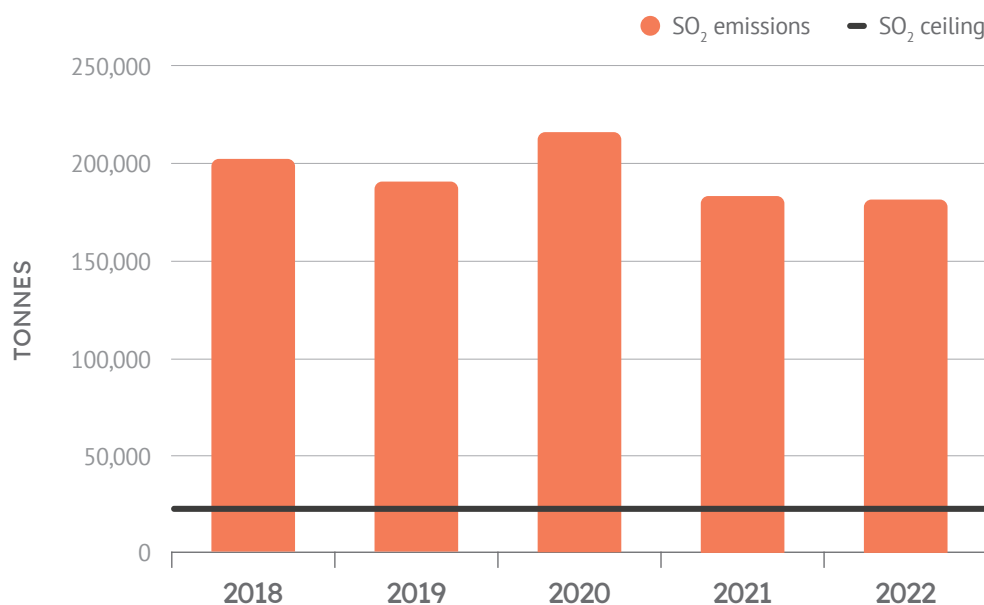


Figure 4: Sulphur dioxide emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

The worst offender in BiH in terms of absolute emissions was once again Ugljevik, whose desulphurisation equipment clearly did not operate during 2022, despite the fact that test operations supposedly began in December 2019.⁵⁵ Its 2022 emissions of 85,526 tonnes were barely any lower than those in 2021 (86,774 tonnes). Since 2018, there has been no significant decrease in the plant's emissions.

⁵² USAID, [National Emission Reduction Plan for Bosnia and Herzegovina](#), Energy Community, November 2015.

⁵³ 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.

⁵⁴ Energy Community Secretariat, [Report on the final list of opted-out plants](#), Energy Community, April 2018.

⁵⁵ Iskra Pavlova, 'Bosnia's Ugljevik 82 mln euro desulphurisation project nears completion', *SEE News*, 2 July 2019.

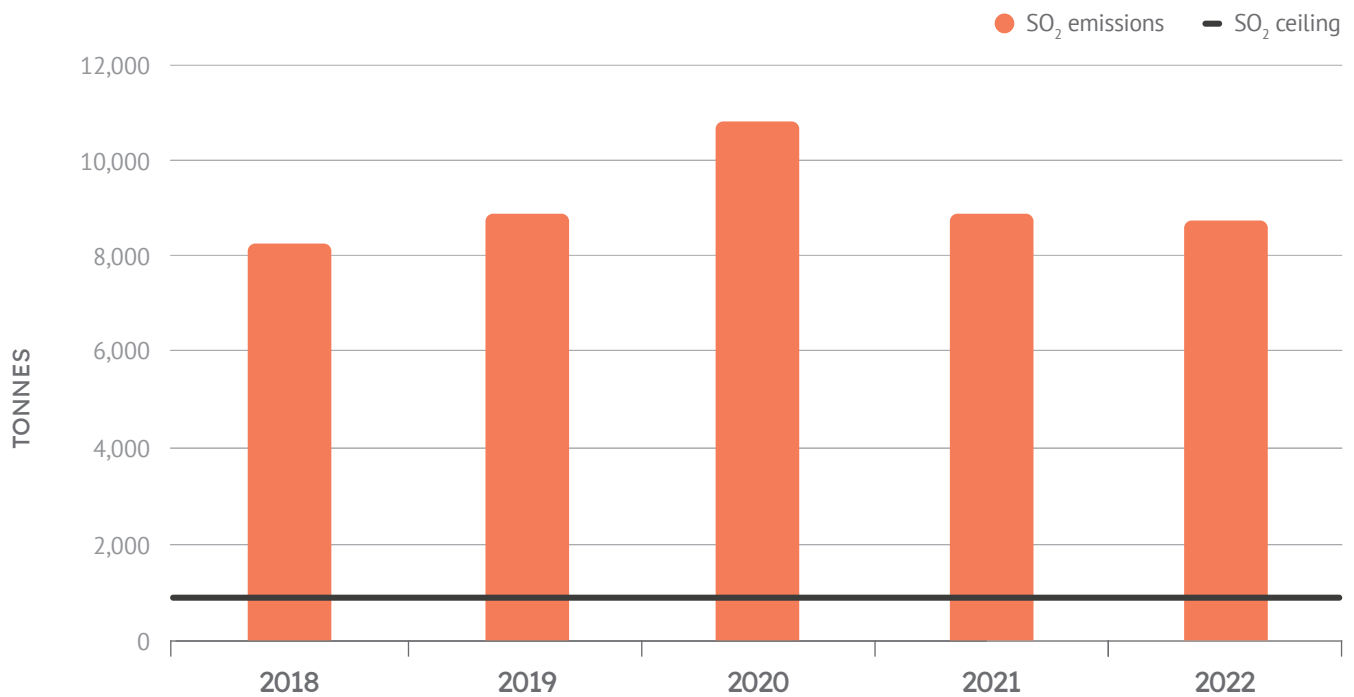


Figure 5: Sulphur dioxide emissions from Ugljevik, compared to the individual emissions ceiling, 2018 to 2022

After being temporarily overtaken by Tuzla 6 in 2021, during 2022 Kakanj 7 was back to being the unit with the highest exceedance of its NERP emissions limit for sulphur dioxide in Bosnia and Herzegovina. It emitted no less than 11.8 times as much as allowed under its NERP ceiling.

In 2022, dust emissions from Bosnia and Herzegovina's NERP plants amounted to 4,892 tonnes – 2.9 times as much as the allowed ceiling. This represented a certain decrease from the previous year's peak of 6,040 tonnes, but was still massively more than the 2,686 tonnes emitted in 2020.

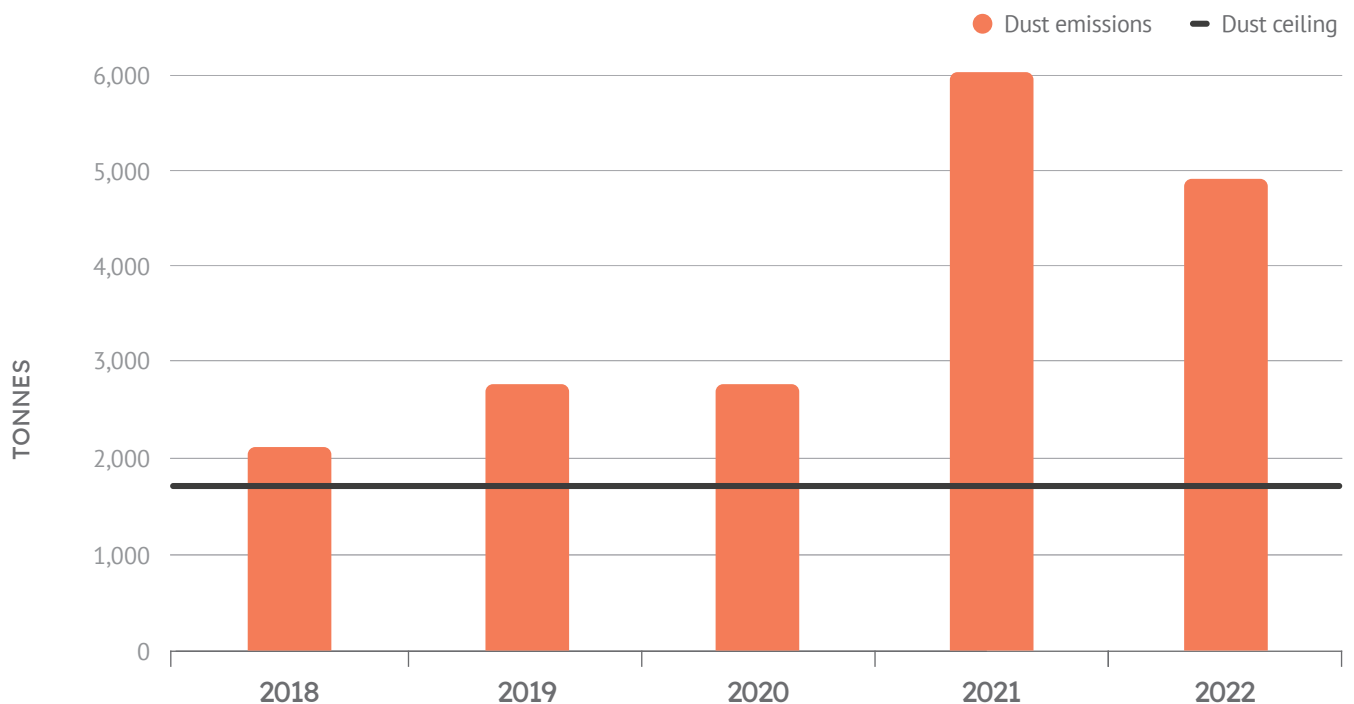


Figure 6: Dust emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

This very high level was largely due to massive dust emissions from the Gacko plant, which were twelve times as high as the plant's ceiling in 2022. This was somewhat less than in 2021, but much higher than 2020. The reason for this is not clear, and is not linked to its operating hours.

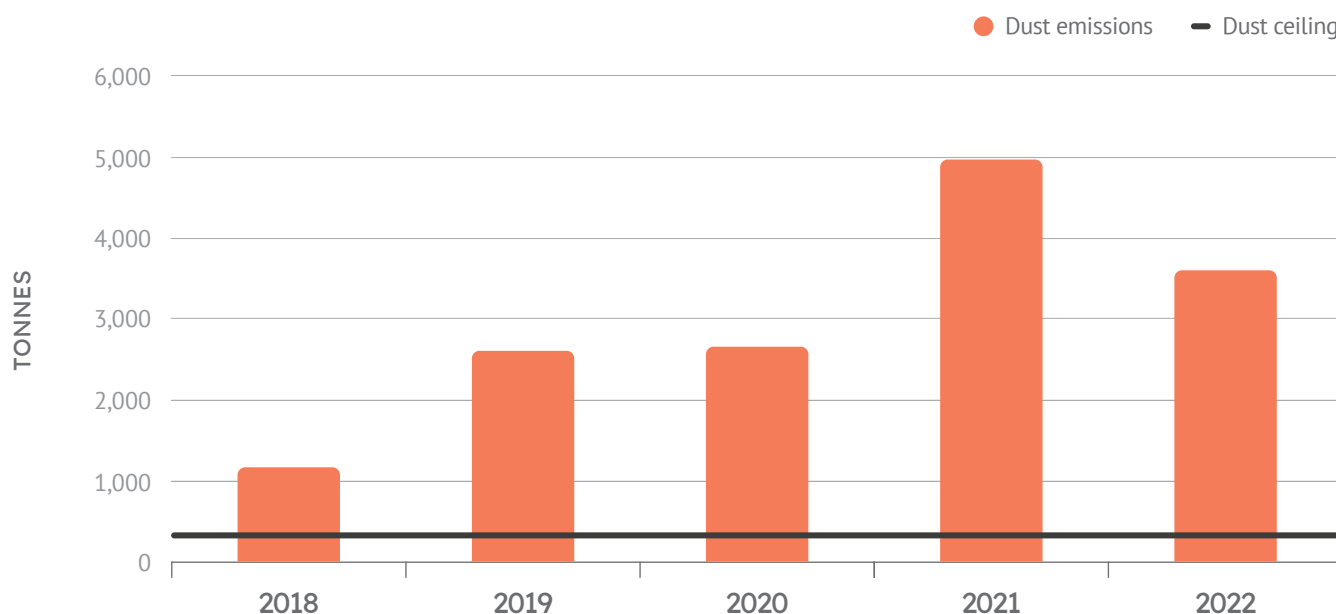


Figure 7: Dust emissions from Gacko, compared to its emissions ceiling, 2018 to 2022

Dust emissions from the Ugljevik plant increased in 2022, amounting to 2.5 times as high as the plant's ceiling.

Nitrogen oxides emissions from BiH's NERP coal units in 2022 totalled 11,944 tonnes compared to the allowed ceiling of 9,036 tonnes, representing a drop compared to 14,273 tonnes in 2021.

Nevertheless, NO_x emissions in 2022 were still 1.3 times as high as the ceiling – the same as in 2021 – because unlike for SO₂ and dust, the NERP ceiling for NO_x drops steadily each year.

In 2022, Kakanj 7 had the highest exceedance for NO_x, with more than double the allowed emissions. The next two were Ugljevik and Gacko, which emitted 1.4 and 1.5 as much NO_x as allowed, respectively.

Gacko power plant, Bosnia and Herzegovina
Photo: Andrey Ralev





Figure 8: Nitrogen oxide emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

Bosnia and Herzegovina (2022)

SO ₂ ceiling ⁵⁶	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
22,195	182,667	1,690	4,892	9,036	11,944

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, at the same time as with other countries. As the breaches have not been rectified, as of May 2023, the case remains open.⁵⁷

'Opting out' of compliance

As mentioned above, Tuzla 3, Tuzla 4 and Kakanj 5⁵⁸ are subject to so-called 'opt-out' rules, which allows them to run for a total of 20,000 hours between 1 January 2018 and 31 December 2023. After this, they either need to close or comply with the emission limit values for new plants under the Industrial Emissions Directive.

As they entered 2022, Tuzla 4 and Kakanj 5 were already near to using up their allotted 20,000 hours. Tuzla 4 had used up 18,849 hours and Kakanj 5 had used up 19,164 hours, while Tuzla 3 had used up fewer – 14,223.⁵⁹

By the end of 2022, Tuzla 3 still had some hours available to use up, as it had operated for 17,050 hours since the beginning of 2018.

But Tuzla 4 and Kakanj 5 continued to work after their legal expiry date. As explained in last year's Comply or Close report,⁶⁰ early in 2022, Elektroprivreda BiH asked for an illegal lifetime extension for the units, and in March 2022 received permission from the Federation of BiH Parliament.⁶¹

⁵⁶ 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.

⁵⁷ Energy Community Secretariat, [Case ECS 09/21, Bosnia and Herzegovina/Environment](#).

⁵⁸ Energy Community Secretariat, [Report on the final list of opted-out plants](#).

⁵⁹ Operating hours for 2018 to 2021 reported to the [European Environment Agency](#).

⁶⁰ CEE Bankwatch Network, [Comply or Close](#), June 2022.

⁶¹ Energy Community Secretariat, [Environmental concerns increase with decision on lifetime extension of Tuzla 4 and Kakanj 5](#).

The decision involved moving the units from the opt-out regime into the NERP, but this could only have been carried out earlier in the process when they had not yet used up all their operating hours.

After using up their hours, they can only be operated if they meet the emission limit values set out in Part 2 of Annex V to Directive 2010/75/EU.⁶² Nowhere in the documentation provided by 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 March 2022, Bankwatch and the Aarhus Centre in Sarajevo therefore submitted a complaint to the Energy Community Secretariat. In October 2022, this was followed by the Secretariat opening a second case against Bosnia and Herzegovina for non-compliance with the Large Combustion Plants Directive.⁶³

Ongoing investments

Bosnia and Herzegovina has so far not come up with a clear plan to phase out coal. Yet official projections⁶⁴ that several of the NERP plants will operate beyond 2030 are not realistic, given that they are already on average 42 years old.

As mentioned above and discussed in previous editions of *Comply or Close*, Ugljevik has had a desulphurisation unit fitted, which supposedly started test operations in late 2019. In August 2020, the operator claimed that the testing had been successfully completed that month and that the plant complied with the relevant emission limit values.⁶⁵ It then took until November 2021 for the operator to obtain an operating permit.⁶⁶ But still, this did not result in a decrease in emissions in 2022.

This has not been fully explained. Government inspections were carried out in November 2021 and March 2022, with the first one concluding that the plant did not have enough limestone to operate. After the second one, the inspectorate stated that the Ugljevik plant had had technical problems in January and February, had been running at reduced capacity and had been partly offline. But, it stated, the De-SO_x had successfully operated for eight days in February 2022, in line with the NERP requirements. It also claimed that the De-SO_x unit was completely ready to operate, and had enough limestone for a month, while action was being undertaken to obtain more from a local quarry.⁶⁷

The financing contract for the De-SO_x was signed back in 2009, so the operator has had at least 14 years to obtain enough limestone. This raises concerns that failing to operate the desulphurisation unit may simply be a question of saving money due to the fact that operating such equipment in itself requires quite some energy and results in a drop in the plant's efficiency.

Regarding Gacko's enormous dust pollution, the plant's management have reportedly pledged to fit bag filters by 2024 – if money is available. However, given that a March 2023 visit to Gacko by the Republika Srpska inspectorate did not appear to result in any penalties for non-compliance,⁶⁸ the pressure on ERS and its Gacko subsidiary does not appear great.

Moreover, 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.⁶⁹ This would be a highly problematic proposal in any case, but the plant's lack of pollution control makes it particularly hard to comprehend.

EPBiH plans to invest in desulphurisation for Kakanj 6 and 7, and Tuzla 6, but this also does not seem to be progressing particularly well. In early 2021, the company opened a tender process for desulphurisation for Kakanj 7,⁷⁰ but in March 2022 another one was opened.⁷¹ Similarly, a procurement procedure was carried out in late 2021 / early 2022 for desulphurisation for Tuzla 6,⁷² but was then repeated in late 2022,⁷³ with unclear results.

EPBiH's latest Business Plan 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 7.⁷⁴ But it also mentions spending BAM 100 million, or around EUR 50 million, on a retrofit of Tuzla 4 – a unit which is already 52 years old.

⁶² 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.

⁶³ 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](#).

⁶⁴ E.g. from the [Framework Energy Strategy of Bosnia and Herzegovina until 2035](#), *Ministarstvo vanjske trgovine i ekonomskih odnosa Bosne i Hercegovine*, 69, accessed 2 July 2021.

⁶⁵ Dešavanja u Bijeljini, [Izuzetni rezultati u zaštiti životne sredine](#), *Dešavanja u Bijeljini*, 27 August 2020.

⁶⁶ Ministry of Spatial Planning, Construction and Ecology of Republika Srpska, [Decision no. 15.03-360-164/21](#), 11 November 2021.

⁶⁷ Redžib Skomorac, LL.B., 'Ugljevik 1' Thermal Power Plant, in *Renewables and Environmental Regulatory Institute (RERI), Desulphurisation in the Western Balkans*.

⁶⁸ Direkt, ['Ne lipiši Gacko do hibridnog filtera'](#), *Direkt*, 26 April 2023.

⁶⁹ Dejan Tovilović, ['TE Gacko će spaljivati evropsko smeće'](#), *Capital*, 12 May 2023.

⁷⁰ Akta, ['Otvoren poziv za izgradnju postrojenja za odsumporavanje u TE Kakanj, posao od 117 mil. KM'](#), Akta, 4 January 2021.

⁷¹ Akta, ['Izvođenje radova na izgradnji postrojenja za odsumporavanje dimnih plinova u Termoelektrani Kakanj'](#), Akta, 3 March 2023.

⁷² Bosnia and Herzegovina, [LCP Emissions in 2021](#), *European Environment Agency*, March 2022.

⁷³ Mihajlo Vujašin, ['Tender za izgradnju postrojenja za odsumporavanje u TE Tuzla otvoren do 15. Novembra'](#), *Balkan Green Energy News*, 3 October 2022.

⁷⁴ Elektroprivreda Bosne i Hercegovine, [Plan poslovanja za period 2023.-2025. godina](#), *Elektroprivreda Bosne i Hercegovine*, December 2022.

Compliance with the NERP ceilings in 2022

All of Kosovo's five coal-fired units (Kosova A3, A4 and A5 and Kosova B1 and B2) are included in the NERP.

Kosovo continues to breach the ceilings for all three pollutants, by a large margin. **Dust emissions have always been the country's biggest problem, but in 2022 SO₂ and NO_x emissions also increased significantly compared to 2021, while dust ones stayed almost the same.**

Dust pollution was 4.3 times above the national level ceiling set out in Annex 2⁷⁵ of the NERP, at 5,867 tonnes. This was slightly less than 2021 emissions, but equal to 2020. Kosova B's two units alone breached the national dust ceiling in 2022 by almost 4 times (3.9), releasing a total of 5,314 tonnes of dust into the atmosphere. Unit B1 alone emitted 6.75 times above its individual ceiling, making it the country's worst emitter.

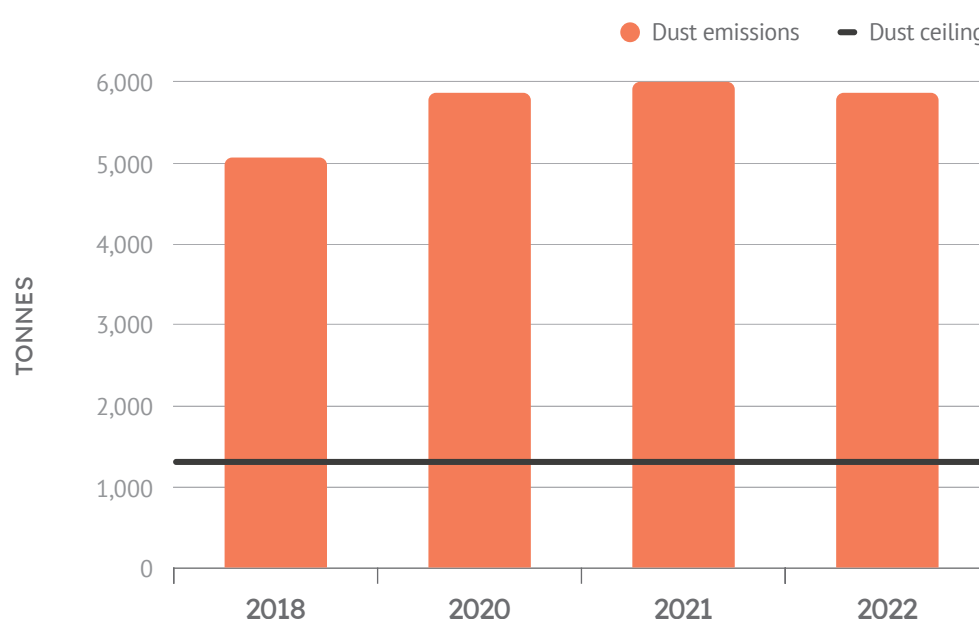


Figure 9: Dust emissions from Kosovo's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022 (2019 data is unavailable)

SO₂ emissions were 1.8 times above the national ceiling in 2022, a considerable increase from 1.3 times in the previous year, at an absolute value of 19,987 tonnes. This was back up to the exact same amount as in 2020. In 2021 we were unable to explain the drop in emissions, considering no De-SO_x equipment had been fitted, and now the figures are back up again, despite the overall number of operating hours for Kosovo's plants having decreased in 2022 by a staggering 12,000 hours. However, it is difficult to assess the accuracy of the operating hours, because 2022 is the first time that the country does not report the same number of hours as it had in the period between 2018 and 2021. Most likely, the key to the puzzle rests in the calculation formula, because Kosova A lacks continuous monitoring equipment and Kosova B's monitoring equipment is operational only at the regular testing intervals, in between which emissions are calculated mathematically.

⁷⁵ This annex is not part of the publicly available NERP and has been leaked to the authors of this report.

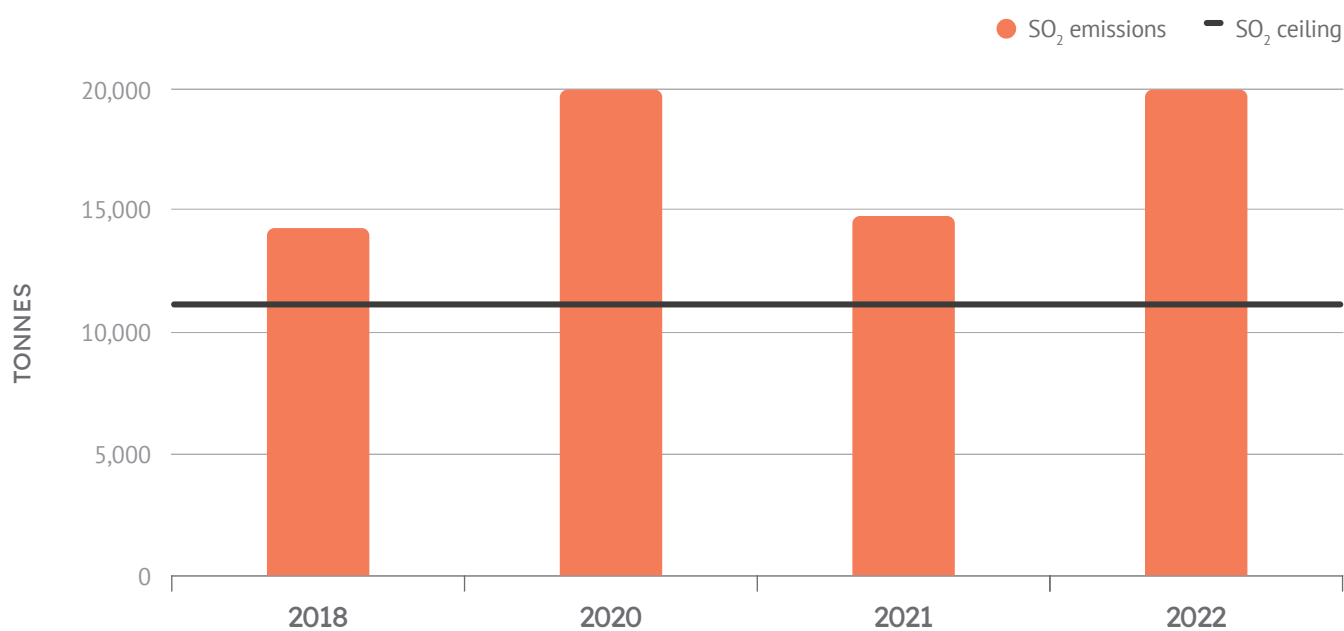


Figure 10: Sulphur dioxide emissions from Kosovo's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022 (2019 data is unavailable)

Kosovo's NO_x emissions also climbed back up to 2020 levels, the country's highest since reporting began, at 22,846 tonnes. The country stands out regionally for the highest breach of the NO_x ceiling – 1.68 times as much as allowed. On an individual unit level, the Kosova A4 unit had the highest breach of its individual ceiling. All units but Kosova A3 breached their individual ceilings.

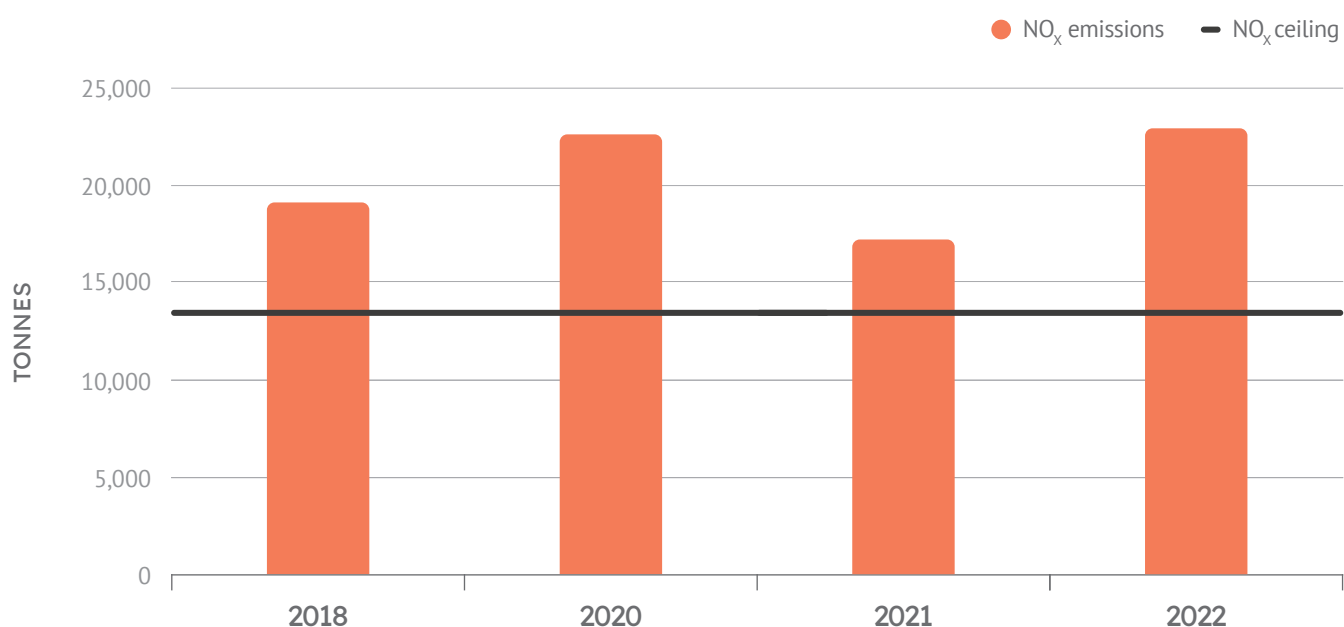


Figure 11: Nitrogen oxides emissions from Kosovo's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022 (2019 data is unavailable)

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 document⁷⁶ 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 SO₂ 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,⁷⁷ even though the ceilings for dust and NO_x are higher than those in the main body of the document.

Kosovo (2022)	SO ₂ ceiling	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
Main NERP ceiling	10,077	19,987	883	5,867	8,829	22,846
Annex 2	10,894		1,362		13,617	

In February 2022, 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 Opinion (the second step in a three-step process) for 'failing to meet their NERP (National Emission Reduction Plan) ceilings for the reporting years 2018 and 2019 and thus not achieving significant reduction of air pollution from thermal power plants'.⁷⁸

Ongoing investments

Kosovo's NERP envisaged that Kosova B1 would undergo retrofitting by 2021⁷⁹ 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 official project duration is until January 2023⁸⁰ but no information on the progress of the works has been made available to the public.

The country's new Energy Strategy, adopted in March 2023 and covering 2022-2031, however, hints at delays in these rehabilitation works. It mentions that rehabilitation of the units of Kosovo B1 and B2 will be carried out in two stages, by the end of 2025 and 2026 respectively, vowing to meet the mandatory emission standards of the Industrial Emission Directive.⁸¹

The strategy, worryingly, also mentions that one of the Kosovo A units 'will be refurbished by the end of 2024, while the decision to refurbish or phase out the second unit will be made in 2024 at the latest'.⁸² 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-2023. 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 97 million each needed for the two units of Kosova B. It is not clear how Kosovo could secure this funding.

⁷⁶ Government of Kosovo, [National Emissions Reduction Plan Kosovo](#), Energy Community, 2018.

⁷⁷ '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.

⁷⁸ Energy Community Secretariat, [Secretariat brings forward cases against three Contracting Parties for not reducing air pollution from thermal power plants](#).

⁷⁹ Government of Kosovo, [Kosovo National Emissions Reduction Plan](#), 11.

⁸⁰ European Union 4 Kosovo, [Dust and NO_x reduction measures at TPP Kosova B, Units B1 and B2](#) project profile, [KosovoProjects.eu](#), accessed on 22 May 2022.

⁸¹ Kosovo Ministry of Economy, [Energy strategy of the Republic of Kosovo 2022-2031](#).

⁸² Ibid.

Kosova A power plant, Kosovo
Photo: CEE Bankwatch Network

Pljevlja coal plant legal breach enters its third year

Montenegro only has one large combustion plant, the 225 MWe Pljevlja lignite power plant, and it 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,⁸³ issued in March 2018, it must 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 up as quickly as possible. By the end of 2020, the plant had already operated for 21,003 hours since 1 January 2018⁸⁴ – but it did not stop there. In 2021, the plant operated for 6,450 hours,⁸⁵ and in 2022 it worked for 6,949 more.⁸⁶

In April 2021, the Energy Community Secretariat opened an infringement case against Montenegro,⁸⁷ and in February 2023 it issued a reasoned opinion,⁸⁸ taking the case one step further towards a decision by the Ministerial Council.

It is true that the new government that took office in December 2020 in Montenegro was presented with a fait accompli and found itself in the unenviable position of having an illegal power plant supplying around 40 per cent of the country's electricity. And the modernisation project that was planned to bring it into compliance was not ready. But two and a half years later, the government still has not presented a clear plan of action.

Instead, it has muddled the waters and confused the public, media and parliament by constantly mentioning 'negotiations' with the Energy Community Secretariat to resolve the issue.⁸⁹ But these negotiations do not and cannot exist. The Secretariat cannot change the Large Combustion Plants Directive even if it wanted to, and nor can the European Commission.

After almost two years of the government raising false hopes that the plant's operations would be legalised, in December 2022 members of parliament adopted changes to the Law on Industrial Emissions,⁹⁰ which allow the plant to operate until the end of the imaginary 'negotiations' and the conclusion of the Energy Community's case against Montenegro. This does nothing to change the situation, however, as international law such as the Energy Community Treaty clearly takes primacy over Montenegrin domestic law.⁹¹

Emissions in 2022

In 2022, Pljevlja's sulphur dioxide amounted to 46,504 tonnes – more than in 2021 but less than in 2020. Its dust and NO_x emissions also increased somewhat compared to 2021, totalling 560 tonnes and 3,954 tonnes respectively.⁹²

Since 2018, the trends have been different for each of these three substances. SO₂ emissions have been going up and down since 2018, and the reasons are not entirely clear. They are not fully accounted for by differences in operating hours in the different years.

⁸³ 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.

⁸⁴ Operating hours from Montenegro reports to the European Environment Agency, EIONET, [Central Data Repository](#), for 2018, 2019 and 2020.

⁸⁵ European Environment Agency, EIONET, [Central Data Repository](#), reported 15 April 2022.

⁸⁶ European Environment Agency, EIONET, [Central Data Repository](#), reported 13 April 2023.

⁸⁷ Energy Community Secretariat, [Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'](#).

⁸⁸ Energy Community Secretariat, [Secretariat sends Reasoned Opinion to address non-compliance of TPP Pljevlja with the Large Combustion Plants Directive](#).

⁸⁹ See for example, Vladimir Spasić, 'Montenegro changes law for coal power plant Pljevlja to continue operating', *Balkan Green Energy News*, 3 March 2023 and MINA, 'Ove sedmice nastavljaju pregovore sa Evropskom energetsom zajednicom', MINA, 2 February 2021.

⁹⁰ Vladimir Spasić, 'Montenegro changes law for coal power plant Pljevlja to continue operating'.

⁹¹ Montenegro's [2007 Constitution](#) states in Article 9 that 'The ratified and published international agreements and generally accepted rules of international law shall make an integral part of the internal legal order, shall have the supremacy over the national legislation and shall be directly applicable when they regulate the relations differently from the internal legislation.'

⁹² European Environment Agency, EIONET, [Central Data Repository](#), data for 2018, 2019, 2020 and 2021.

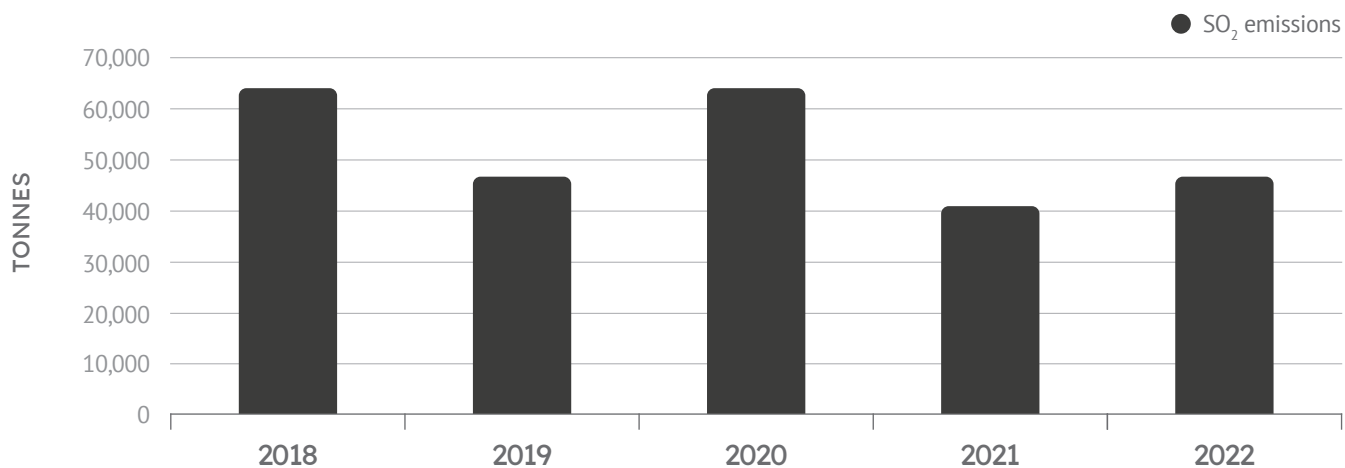


Figure 12: Sulphur dioxide emissions from Montenegro's Pljevlja coal plant, 2018 to 2022

NO_x emissions appeared to be on a downward trend between 2018 and 2021 but rose again slightly in 2022. Again, the reasons are unknown and are not explained by operating hours or investments.

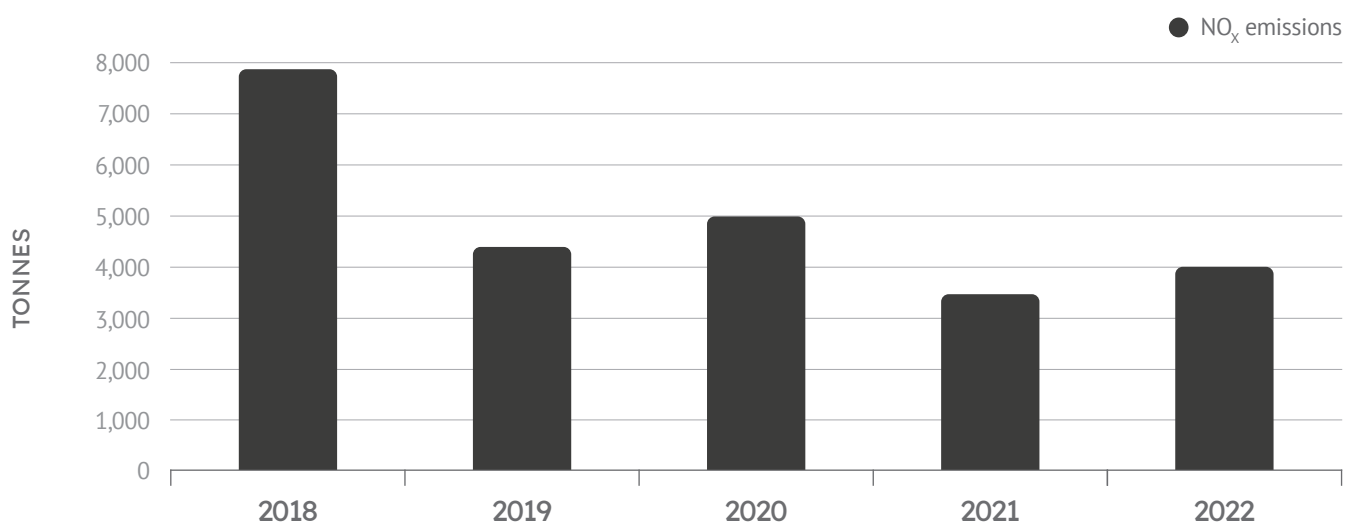


Figure 13: Sulphur dioxide emissions from Montenegro's Pljevlja coal plant, 2018 to 2022

Dust emissions, however, have been on an upward – rather than downward – trend since 2018, and this continued in 2022.

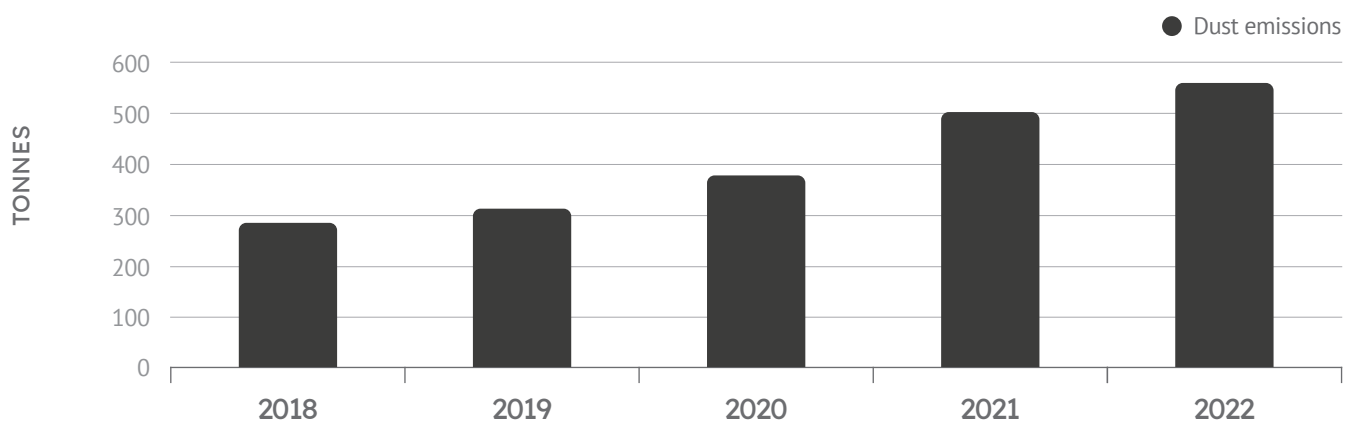


Figure 14: Dust emissions from Montenegro's Pljevlja coal plant, 2018 to 2022

Ongoing investments

As of May 2023, 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.⁹³

The process has been plagued with irregularities, as discussed in previous editions of *Comply or Close*,⁹⁴ and it is far from clear whether the project will bring the promised improvements. Still, in April 2022, nearly two years after the signing of the contract, works reportedly started.⁹⁵ In March 2023 it was then reported that the equipment was about to arrive from China to be installed after the preparatory works had taken place.⁹⁶

⁹³ Balkan Green Energy News, '[EPCG signs agreement on TPP Pljevlja environmental overhaul](#)', *Balkan Green Energy News*, 10 June 2020.

⁹⁴ CEE Bankwatch Network, [Comply or Close](#).

⁹⁵ Vladimir Spasić, '[EPCG započela ekološku rekonstrukciju TE Pljevlja](#)', *Balkan Green Energy News*, 24 April 2022.

⁹⁶ Saša Bezarević, '[Stiže oprema iz Kine, rekonstrukcije Termoelektrane Pljevlja pri kraju](#)', *RTCG*, 4 March 2023.

Pljevlja power plant, Montenegro
Photo: CEE Bankwatch Network



Compliance with the NERP ceilings in 2022

Since the adoption of the North Macedonian NERP in 2017, without any public consultations or a strategic environmental assessment, the country has made no progress in reducing the pollution from large combustion plants. On the contrary, the way that authorities responded to the energy crisis caused a significant increase in the emissions of all pollutants.

In 2022, the activation of the heavy-oil-fired plant in Negotino and the non-transparent imports of highly-polluting coal from all over the region, caused the country to have the highest emissions of SO₂, NO_x and dust in the five years since the NERP came into force. This is despite two of the LCPs, the installations within the oil refinery OKTA, not being operational at all, and two gas-fired heating plants already being in line with the LCP BREF. In addition, Bitola's third unit was non-operational throughout the entire year because of a fire in the main transformer in late 2021.⁹⁷

The coal-fired plants still have no pollution control equipment installed for SO₂ and dust and are therefore causing most of the overall emissions from large combustion plants. The heavy oil plant in Negotino also breached its individual ceilings for all pollutants by several times, but its numbers are dwarfed by the pollution caused by the Bitola power plant.

North Macedonia (2022)

SO ₂ ceiling	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
15,855	113,823	1,738	4,202	8,958	5,789

SO₂ emissions from coal combustion marked the highest rise even without the disabled Bitola B3 unit. The two remaining stacks emitted 113,823 tonnes of SO₂ into the atmosphere. This amount is higher than the overall SO₂ emissions in 2019, which were 108,032 tonnes – making 2022's emissions the highest since the NERP came into force in 2018.

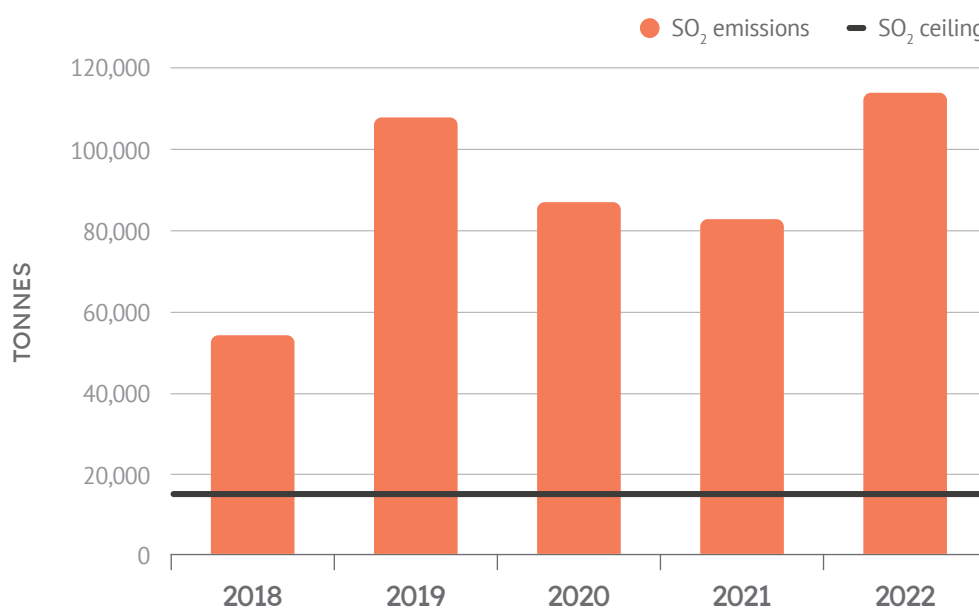


Figure 15: Sulphur dioxide emissions from North Macedonia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

⁹⁷ Telma, 'ВИДЕО: Пожар на трансформатор во РЕК Битола: пожарот е изгаснат, нема повредени', Telma, 5 November 2021.

Bitola B1+B2 almost doubled its emissions compared to previous years. It produced 98 per cent of the SO₂ pollution, 111,408 tonnes, breaching the national ceiling of 15,855 tonnes by seven times alone. It emitted an astonishing 17 times as much as its individual ceiling. This is also the highest amount of SO₂ emitted by a single stack in the Western Balkans in 2022 and even single-handedly breached the regional ceiling, making the Bitola power plant the worst polluter in the region, even with unit 3 out of action.

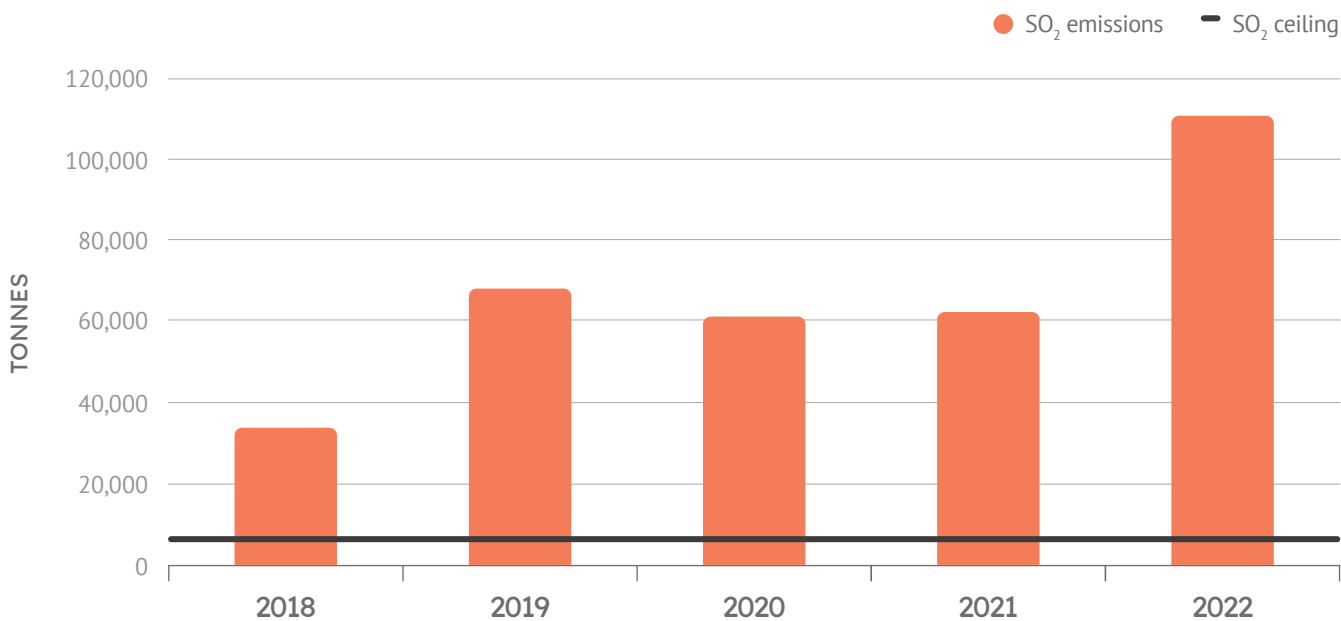


Figure 16: Sulphur dioxide emissions from Bitola B1+B2, compared to the individual emissions ceiling, 2018 to 2022

Oslomej’s contribution to the SO₂ emissions was 2,405 tonnes, lower than in 2021 due to the limited operating hours, which also kept it within its individual ceiling.

North Macedonia’s dust emissions were the highest since 2018, with the Bitola B1+B2 and Oslomej stacks emitting 4,202 tonnes and breaching the national ceiling by 2.5 times.

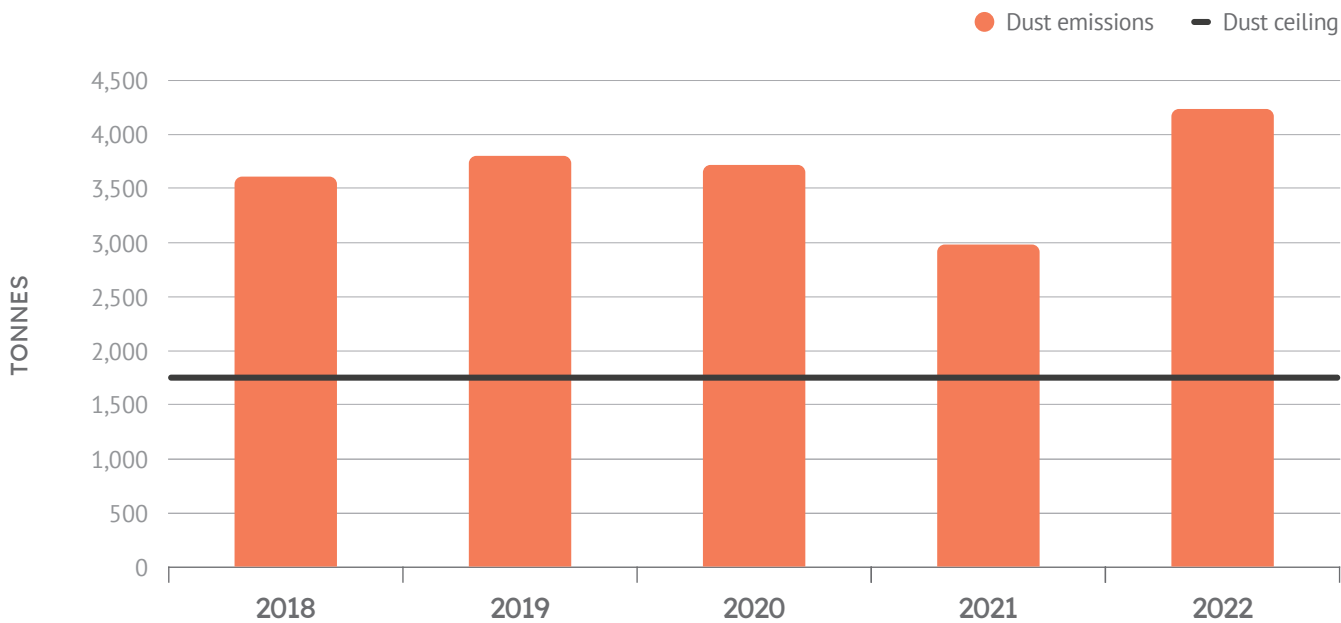


Figure 17: Dust emissions from North Macedonia’s NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

Bitola B1+B2 produced 3,899 tonnes of dust, more than 90 per cent of the overall dust pollution from large combustion plants in the country, and 3.5 times as much as its individual ceiling. As with SO₂, this is the highest amount of dust emitted by a single stack in the region.

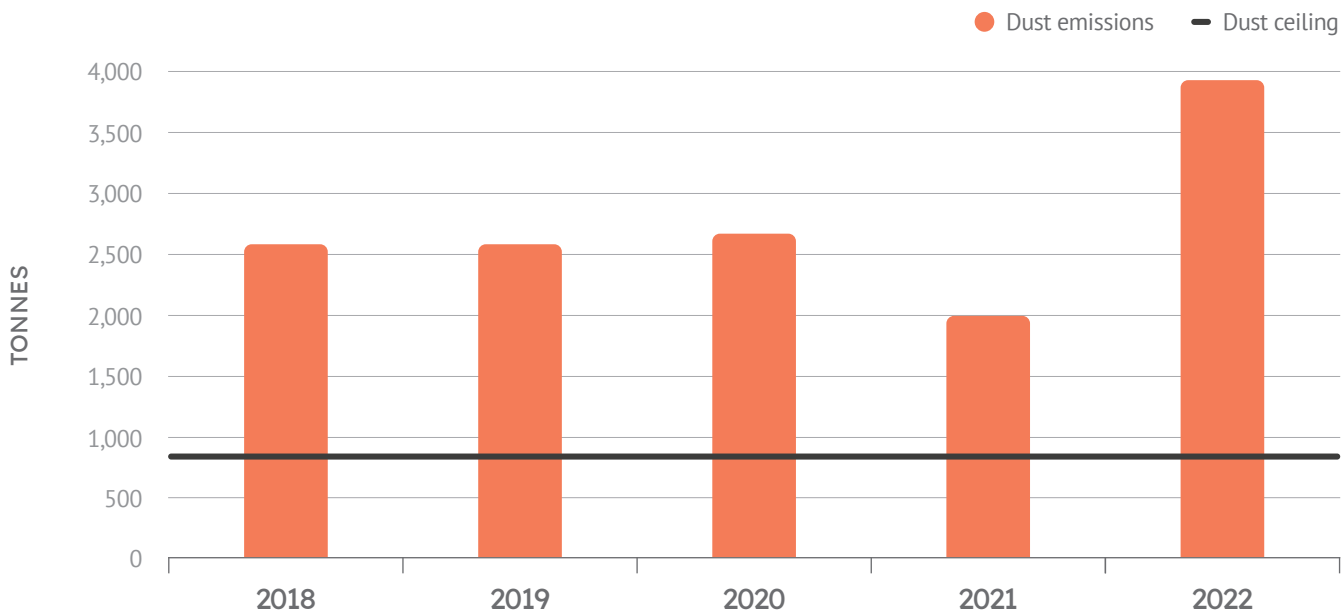


Figure 18: Dust emissions from Bitola B1+B2, compared to the individual emissions ceiling, 2018 to 2022

NO_x emissions also saw a significant increase in 2022, again mostly driven by an increase of emissions from Bitola B1+B2. The total emissions from coal firing were 5,789 tonnes, exactly 2,000 tonnes more than in 2021. The contribution from Bitola B1+B2 was 5,328 tonnes and from Oslomej 303 tonnes. Although this is still lower than the unnecessarily high national ceiling, if there are no investments or closures before 2027 and this trend continues, the country might also breach the NO_x ceiling from the NERP at the end of its validity.

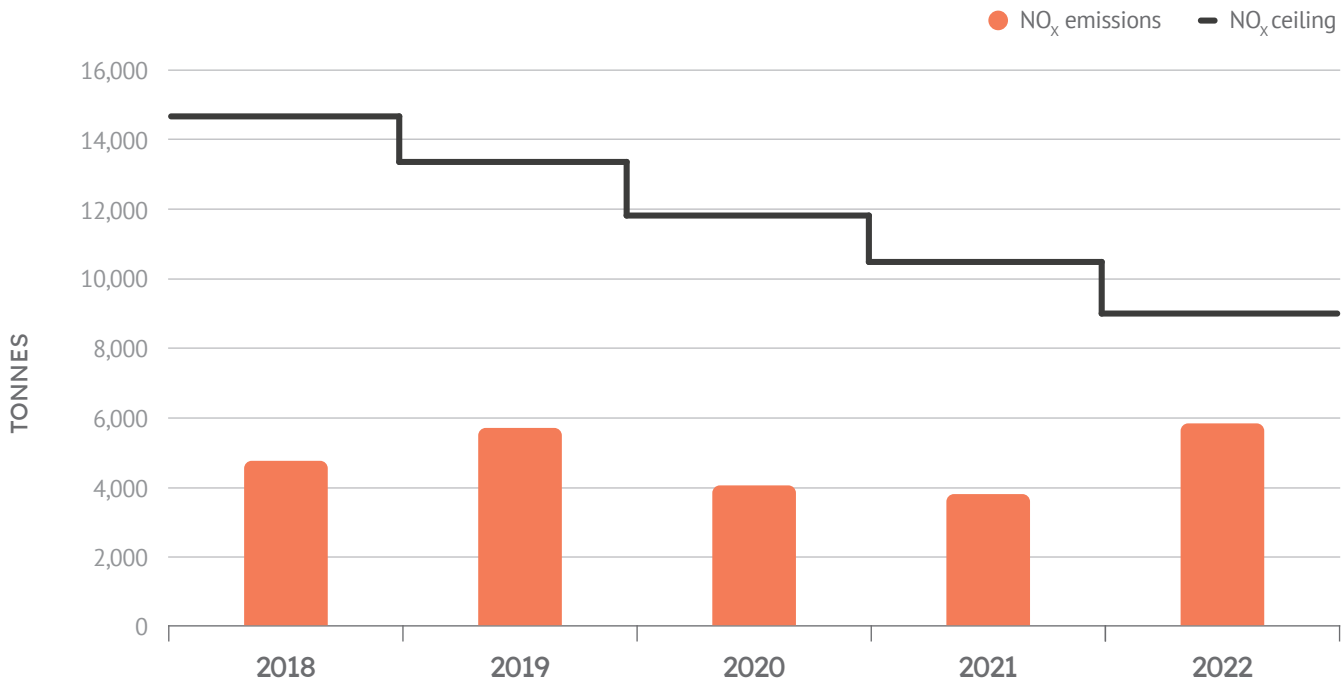


Figure 19: NO_x emissions from North Macedonia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

A recent article by the Balkan Investigative Reporting Network⁹⁸ provides insight into the reasons for this extreme rise in emissions. According to employees from the Bitola power plant, some of the imported coal has the characteristics of bituminous coal and is causing issues with the boilers. What is not mentioned in the article is that bituminous coal usually has higher sulphur and ash content than lignite, and when it is improperly fired, as in this case in a lignite-fired boiler, it is characterised by excess smoke and soot.

While this is just one possibility, it is worth a full investigation, especially because the recently issued IPPC permit for the power plant lists only lignite and heavy oil as the fuels used and these are the only types reported to the Energy Community Secretariat and the European Environment Agency as well.

Ongoing investments

After the last unsuccessful tender for the reconstruction of the electrostatic precipitator in Bitola in 2019, there has been no news regarding investments in pollution control in any of North Macedonia's power plants.

However, in December 2022, the IPPC permit for the power plant in Bitola was finally issued after several failed attempts over the last 15 years. For the first time, there is an official, legally binding timeframe for the necessary investments to bring the power plant in compliance with the Industrial Emissions Directive. But the permit still fails to recognise that the need for continuous monitoring of emissions has been obligatory since 2018, setting the deadline for it to be implemented by the end of 2025 – yet another breach of Energy Community Treaty obligations, which should have been subject to a penalty.

For the reduction of pollution, the permit foresees an complete overhaul of the electrostatic filters by December 2025 and the construction of a desulphurisation facility by December 2026. Taking into account how long other investments in desulphurisation throughout the region took, it is highly unlikely that this deadline will be met. This also makes little sense in the context of North Macedonia's official coal phase-out plans for 2027.

Meanwhile, the government and state-owned electricity company AD ESM are moving forward with the opening of a new lignite mine in Zhivojno, near Bitola. In the same area, a privately-owned open-cast lignite mine has already started extraction, but it was temporarily paused because of damage to a cultural heritage site.

The coal-fired power plant in Oslomej and the heavy oil plant in Negotino still do not meet even the most basic environmental standards and are continuing their illegal operation into 2023 without any plans for investments in pollution control. Unless something changes drastically in the next two years, the country is very likely to be non-compliant with the NERP at the end of the implementation period in 2027. The requirement is for all plants to be individually compliant with the Industrial Emissions Directive Annex V limit values for all pollutants after 2027, and with the way the country is managing the energy sector, the plants might not even end up compliant with the LCPD.

The country is obviously running out of good quality lignite and is increasingly relying on imports of coal with mixed quality, which is in turn raising pollution from the power plants to extreme levels. Since investments in pollution control look unlikely to happen on time, North Macedonia should stick to its original coal phase-out date in 2027 and start investing in sustainable renewables, strengthening the grid, and just transition instead of investing in new coal mines.

⁹⁸ Gotse Trpkovski, ["Со увозниот јаглен се увезле и аномалии во РЕК „Битола“](#), *Prizma*, 15 May 2023.

Compliance with the NERP ceilings in 2022

In 2022, emissions from coal power plants in Serbia increased compared to those in 2021 and once again exceeded the SO₂ ceilings set out in the NERP. Dust emissions, despite staying below the ceiling, increased too, while NO_x emissions remained below the ceiling.

The SO₂ ceiling breach was higher than it was in 2021. Even though Kostolac B's desulphurisation equipment was operating in testing mode for the entire year, the plant emitted over 10,000 more tonnes of SO₂ for a similar number of operating hours.

In a historic ruling,⁹⁹ in November 2022 the Higher Court in Belgrade ordered the state-owned energy utility EPS to bring SO₂ emissions from all its coal power plants into line with the NERP. The court case was initiated by the Renewables and Environmental Regulatory Institute (RERI), and was mainly based on health impact arguments. The expert analysis carried out for the case showed that prolonged exposure to illegal levels of SO₂ emissions can lead to a wide range of consequences for human health, such as difficulties breathing, and the development of long-term asthma and bronchitis. The court rejected EPS's appeal in March 2023; however, no visible action has been taken by the energy utility to speed up the rehabilitation of the coal plants or close the worst emitters – quite the opposite.

SO₂ emissions from the NERP plants remained a major problem in Serbia, being 4.8 times as high as the national ceiling. They were lower than in 2018-2020 – but nowhere near close to compliance – and increased compared to 2021. In absolute numbers, the SO₂ emissions of the 14 coal-fired units included in the NERP amounted to 261,207 tonnes, while the 2022 ceiling in the NERP for 18 large combustion plants¹⁰⁰ is set at a maximum of 54,575 tonnes.

On the plant level, the most staggering increase was at the Morava power plant, which ran almost twice as many hours as in 2021, but its SO₂ emissions increased four times, up to 33,183 tonnes from 8,174 in the previous year. Had this small plant been part of the NERP, it would have alone accounted for over half of the country's ceiling. But it is not – Morava is on the 'opt-out' list, so it was allowed to work for 20,000 hours without any environmental improvements to its original 1969 design, and its emissions are not counted towards any ceiling.

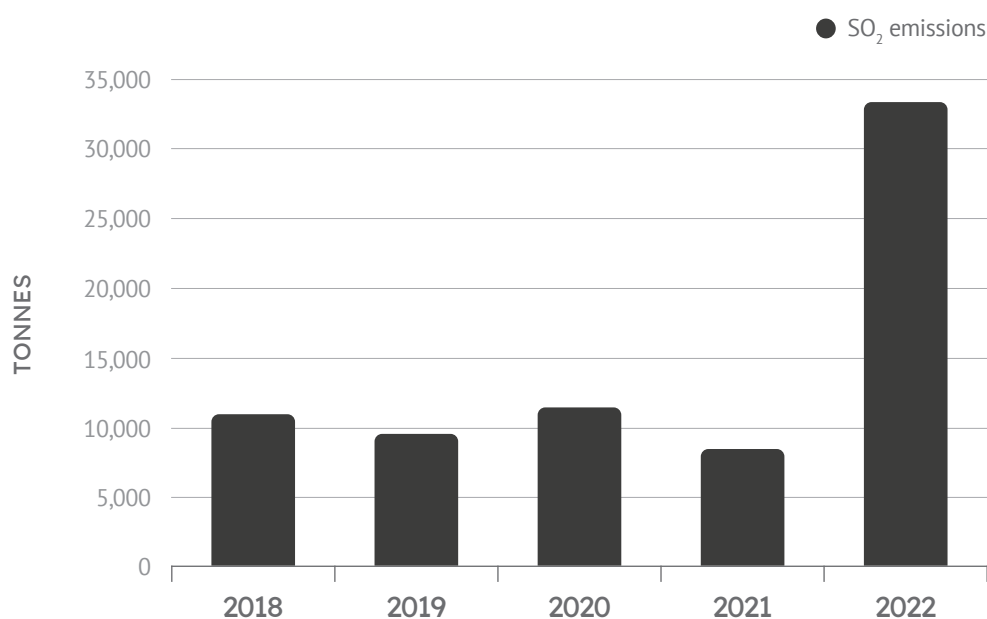


Figure 20: Sulphur dioxide emissions from Morava, 2018 to 2022

⁹⁹ 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

¹⁰⁰ 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 potiču iz starih velikih postrojenja za sagorevanje](#), Annex 2, Ministry for Environmental Protection of the Republic of Serbia, February 2020.



While shocking, it is not Morava which had the highest SO₂ emissions in absolute numbers. The top emitter in Serbia remained, as in 2021, Nikola Tesla B1 and B2 with 73,012 tonnes, up by over 10,000 tonnes compared to the previous year. It was followed closely by Nikola Tesla A4-A6 with 68,651 tonnes.¹⁰¹ Kostolac A2 breached its individual ceiling 8.4 times and emitted 2,410 tonnes, which made it the country's worst offender in terms of individual ceiling breaches.

Five years after desulphurisation equipment was fitted at Kostolac B1 and B2, it finally received an operating permit in January 2023.¹⁰² The equipment was partially operating in 2022 due to a loophole in the law (see below), yet the plant's emissions remained 4.6 times as high as allowed under the plant's ceiling.

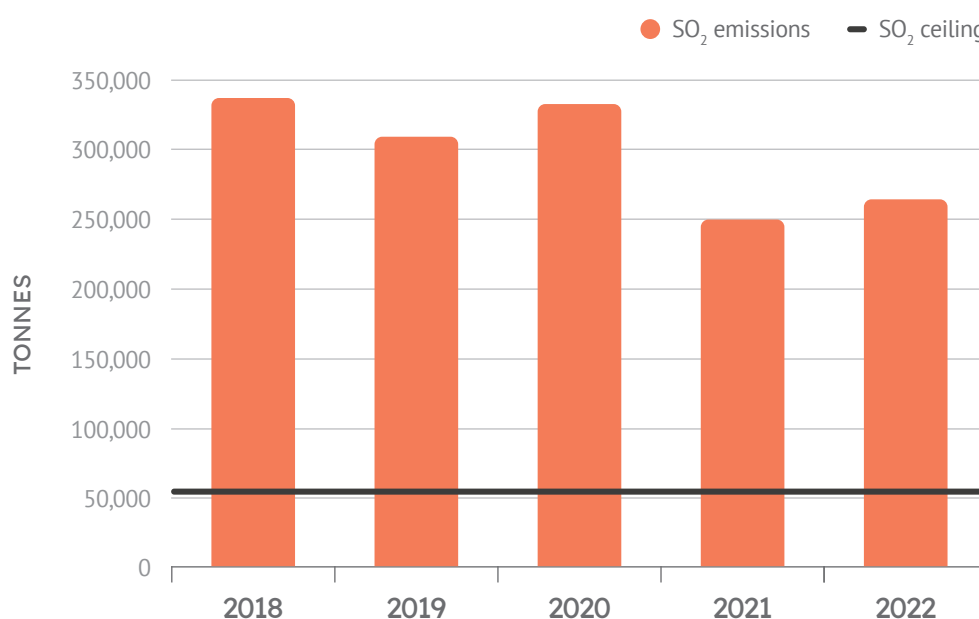


Figure 21: Sulphur dioxide emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

Dust emissions are within the national ceiling but have interrupted their downward trend with a slight increase of 100 tonnes. However, in 2021, Nikola Tesla's A1-A3 units emitted nearly 1.7 times as much as their ceiling: 1,738 tonnes compared to the ceiling of 1,032 tonnes. The other units which breached their individual ceilings were Kostolac A1, which emitted 131 tonnes, above its allowed limit, and the Vreoci heating plant, which emitted 2.9 times as much as its individual ceiling (but remains a relatively minor player due to its small size).

¹⁰¹ European Environment Agency, [EIONET Central Data Repository](#), 28 March 2023. Data not yet verified by the European Environment Agency.

¹⁰² Ministry of Construction, Transport and Infrastructure of the Republic of Serbia, [Operating permit De-SO_x](#), 11 January 2023.

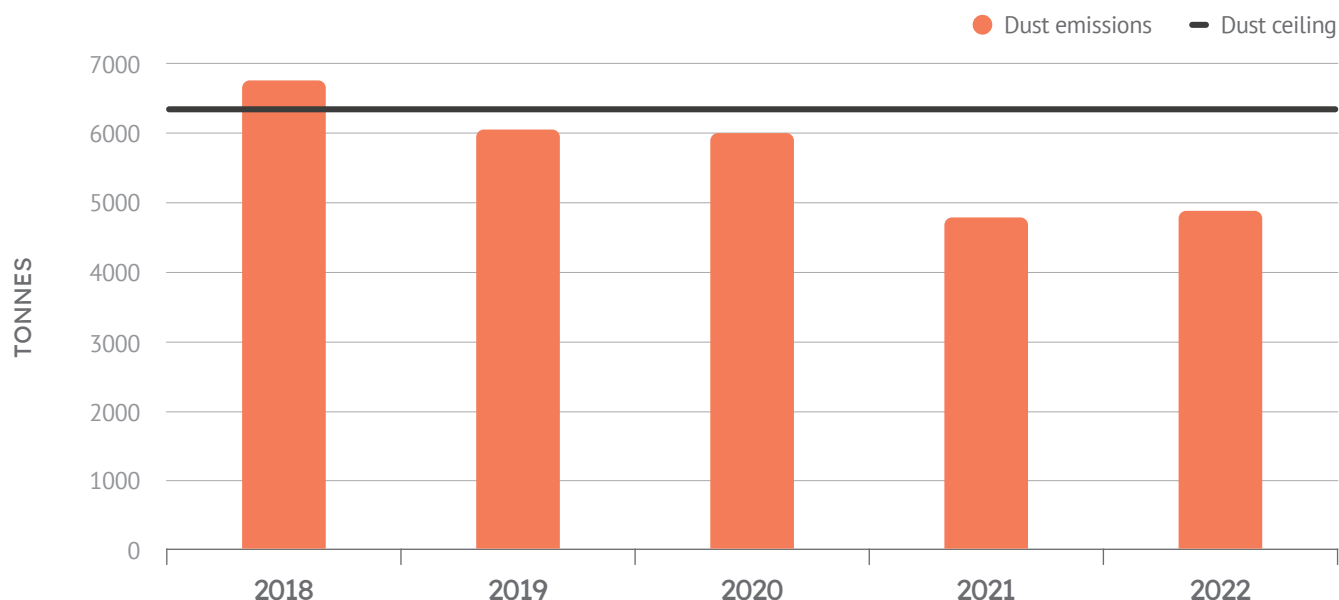


Figure 22: Dust emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

NO_x emissions in Serbia continued their downward trend in 2022, but at a much slower pace than in the previous year. In addition, the ceiling also decreased, bringing the gap between compliance and non-compliance ever closer. The NO_x ceiling continues to drop considerably every year, and judging by the lack of progress on retrofitting these plants, we can expect 2023 to be the year when Serbia is no longer compliant with its NO_x ceiling.

When it comes to individual units, the worst offenders for NO_x were units A4-A6 at the Nikola Tesla plant, with absolute emissions of 9,173 tonnes – an increase from 2021, amounting to 1.1 times its individual ceiling. They were followed closely by the Nikola Tesla B1 and B2 units, with 8,500 tonnes, also up from the previous year, but within their individual ceiling.

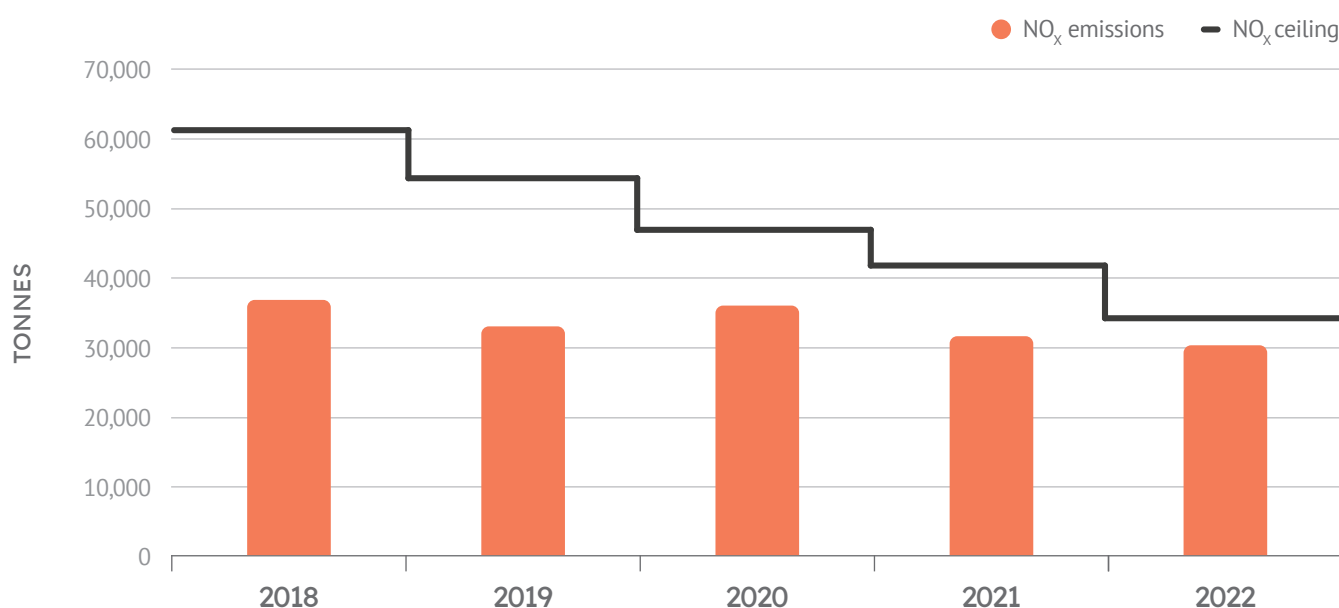


Figure 23: Nitrogen oxides emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2022

Serbia (2022)

SO ₂ ceiling	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
54,575	261,207	6,390	4,898	34,151	30,187

Energy crisis – the perfect getaway from ‘opt-out’ compliance

In 2022, Serbia's energy crisis continued, with shortages of coal and EPS signing import contracts with coal mines in Montenegro, Bulgaria, and Bosnia and Herzegovina during May and June 2022.¹⁰³

In addition to coal imports, Serbia was running its antiquated plant, Morava, at almost full capacity in 2022, in breach of the ‘opt-out’ derogation most likely already since mid-2022, considering it only had approximately 3,000 of its 20,000 operating hours remaining at the end of 2021.¹⁰⁴ To cement this non-compliance, in early 2023 EPS's representative was quoted¹⁰⁵ in the media stating that the company would close Morava and Kolubara A only by the end of 2024, thus showing a clear intention to keep breaching the law.

Total energy costs during the winter exceeded past levels by about 2 per cent of GDP¹⁰⁶ and the government anticipated costs of up to EUR 3 billion to cover electricity, gas and oil imports in 2022.¹⁰⁷ In December, EPS exported electricity worth EUR 16.4 million,¹⁰⁸ according to triumphant company statements; however, its overall financial result was a loss of EUR 630 million¹⁰⁹ (four times higher than in 2021), so banking on coal and hydropower is also proving financially risky as well as environmentally damaging.

This pressure on the state-owned energy company EPS's budget had negative consequences on investments in pollution control. No new announcements of pollution abatement projects have been made since last year's edition of *Comply or Close*, which noted that some of the announced retrofitting projects, Nikola Tesla A1, A2 and B2, were already being postponed and reconsidered.¹¹⁰

Ongoing investments in pollution control

The desulphurisation installation at Kostolac B1 and B2 remains Serbia's only one, but its performance appears to be a failure, rather than a success, considering the plant was still emitting 4.6 times as much as its individual ceiling in 2022 – worse than in 2021. In addition, from 1 January 2028 onwards, the installation is expected to comply with the stricter emission limit values of the Industrial Emissions Directive, something that seems highly unlikely at the moment.

The De-SO_x equipment started testing in October 2020 and since the period between the start of testing and requesting the operating permit could not be longer than a year, EPS requested an operating permit in October 2021. The Ministry neither approved nor rejected this, so EPS made several more requests before finally obtaining the operating permit for the De-SO_x in January 2023.¹¹¹ In 2021 and 2022, EPS occasionally switched on the equipment at Kostolac B, making use of a loophole in the legislation on planning and construction. This states that, if the competent authority does not decide within five days on the request for an operating permit, the project developer can start using the facility, provided that it has a positive opinion from the technical review committee.¹¹²

To add to the problems of Kostolac B's De-SO_x, the wastewater treatment plant, whose construction began in 2019, had not obtained an operational permit by March 2023.¹¹³ There is, therefore, a high probability that the wastewater generated by the operation of the desulphurisation equipment is discharged without treatment and is reaching the international waters of the Danube.

The works on the Nikola Tesla A3-A6 desulphurisation installation appear to be continuing as of May 2023 and are expected to show results this month, according to the EIA decision. No information is publicly available on the progress of this retrofit, except statements by the energy utility's representative at Serbia's Energy Fair, promising compliance with Industrial Emissions Directive at the end of the works.¹¹⁴ This project, which secured financing as early as 2011, moved at an even slower pace than the desulphurisation at Kostolac B1 and B2, and the beginning of works was only announced in 2019.¹¹⁵ In breach of the EIA Directive, this announcement came more than a month before the EIA decision was issued¹¹⁶ by the Ministry of the Environment.

¹⁰³ European Bank for Reconstruction and Development, [Transition Report 2022-2023: Business unusual. Country assessment Serbia](#), European Bank for Reconstruction and Development, 2023.

¹⁰⁴ Energy Community Secretariat, [Annual Implementation Report Serbia](#).

¹⁰⁵ Vladimir Spasić, [‘Plan gašenja termoelektrana u Srbiji’](#).

¹⁰⁶ International Monetary Fund, [Republic of Serbia: Second Review Under the Policy Coordination Instrument and Request for Modification of Targets](#), International Monetary Fund, 22 June 2022.

¹⁰⁷ Reuters, [‘Serbia readies 3 bln euros for energy imports in winter’](#), Reuters, 15 September 2022.

¹⁰⁸ Elektroprivreda Srbije, [‘Operation of the Largest Power Company in Serbia’](#), Elektroprivreda Srbije, April 2023.

¹⁰⁹ Vladimir Spasić, [Elektroprivreda Srbije posts 2022 loss of EUR 630 million](#), 9 February 2023.

¹¹⁰ Igor Todorović, [‘Serbia's EPS delaying, reconsidering reconstruction of coal plant units’](#), Balkan Green Energy News, 27 April 2022.

¹¹¹ Ministry of Construction, Transport and Infrastructure of the Republic of Serbia, [Operating permit De-SO_x](#).

¹¹² Renewables and Environmental Regulatory Institute (RERI), [Desulphurisation in the Western Balkans](#).

¹¹³ Ibid.

¹¹⁴ Elektroprivreda Srbije, [Ulaganja za jači sistem](#), Elektroprivreda Srbije, 5 October 2022.

¹¹⁵ Svetlana Jovanović, [‘Construction launched on flue-gas desulfurization systems at coal-fired power plant TENT A’](#), Balkan Green Energy News, 14 February 2019.

¹¹⁶ Ministry for Environmental Protection of the Republic of Serbia, [Rešenje o davanju saglasnosti na studiju o proceni uticaja na životnu sredinu projekta izgradnje postrojenja za odsumporavanje dimnih gasova blokova A3-A6 na lokaciji TE Nikola Tesla A, Gradska opština Obrenovac](#), Ministry for Environmental Protection of the Republic of Serbia, 29 March 2019.

The fitting of desulphurisation equipment at Nikola Tesla units B1 and B2 – the country's second highest SO₂ emitter after Kostolac B – was announced in December 2020,¹¹⁷ and should be finalised by 2024. However, the notice of start of works states that the expected deadline for the completion of the works is March 2024, while the construction permit for the actual electricity supply of the desulphurisation plant was issued in March 2023. As the feasibility study predicts 3.5 years for the construction of this system,¹¹⁸ on which the operation of the desulphurisation plant depends, it could begin operation only at the end of 2026 at the earliest. Additionally, the wastewater treatment plant was not assessed as part of the De-SO_x fitting process, and was only permitted in January 2023.¹¹⁹

For Kostolac A, EPS launched a bid for a feasibility study for a desulphurisation installation¹²⁰ in October 2020. The intention of the operator was also to extend the power plant's lifetime by an additional 15 years, at the time.¹²¹ However, in 2022 the company appeared to reconsider this decision, quoting poor economic feasibility, and leaning more towards shut down,¹²² as was, in fact, the original plan when the NERP was first drafted in 2016.

¹¹⁷ Vladimir Spasić, '[SO₂ emissions from Nikola Tesla B coal plant to be reduced 20 times by 2024](#)', *Balkan Green Energy News*, 2 December 2020.

¹¹⁸ Renewables and Environmental Regulatory Institute (RERI), '[Desulphurisation in the Western Balkans](#)'.

¹¹⁹ eKapija, '[Zeleno svetlo za gradnju postrojenja za prečišćavanje otpadnih voda u TENT B](#)', *eKapija*, 31 January 2023.

¹²⁰ Nina Domazet, '[EPS namjerava produžiti život TE Kostolac A](#)', *energetika-net*, 19 October 2020.

¹²¹ Vladimir Spasić, '[EPS plans to extend lifespan of TPP Kostolac A until 2038](#)', *Balkan Green Energy News*, 15 October 2020.

¹²² Vladimir Spasić, '[EPS considering shutdown of coal power plant Kostolac A](#)', *Balkan Green Energy News*, 29 July 2022.

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

Conclusions and recommendations

The pollution levels from Western Balkan coal plants after five years of the Large Combustion Plants Directive are utterly appalling. In 2022, emissions of all three regulated pollutants were in breach of the ceilings set in the National Emission Reduction Plans for Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia. Moreover, emissions for all three substances increased regionally, rather than decreasing.

Regionally, sulphur dioxide pollution from the NERP coal plants was 5.6 times as much as allowed, dust was 1.8 times as much as allowed and for the first time since the directive entered force in 2018, nitrogen oxides emissions also breached the limits set by the NERPs.

Recommendations

The Western Balkan governments must finally get a grip on the situation and stop letting energy utilities make their own rules. The need to cut pollution and ramp up energy efficiency and sustainable forms of renewable energy is greater than ever. And due to the lack of timely action in previous years, everything needs to be done at double speed now.

Commitments already made need to be honoured. Plants operating under the opt-out regime must close promptly,¹²³ and North Macedonia needs to stick to its 2027 coal phase-out date and redouble efforts to be ready for it.

For the other countries, it is imperative to finally put the NECP options on the table publicly and discuss through public debate what the options actually are. 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.¹²⁴

In the meantime, their operating hours need to be reduced, to keep pollution to a minimum. Security of supply is crucial, but as Kosovo showed this winter, demand can also be reduced by other measures, both short-term and more systematic such as reducing distribution losses, insulating buildings, and 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.

More broadly, 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.

¹²³ 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.

¹²⁴ CEE Bankwatch Network, [The Western Balkan Power Sector - Between crisis and transition](#).

To all the Western Balkan governments

- 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 draft 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 a carbon border adjustment mechanism in the coming years.
- Ramp up investments in solar, wind, 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 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

- Immediately cancel the decision to extend the lifetime of Tuzla 4 and Kakanj 5.
- Immediately reduce the operating hours of all plants that are breaching their NERP ceilings.
- Urgently examine the reason for the dramatic dust and NO_x emissions at Gacko and take action to reduce emissions, whether by reducing operating hours or undertaking repairs.
- Resolve the issues with the Ugljevik desulphurisation equipment. Once online, 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.
- Use the process of defining the Integrated Energy and Climate Plan for Bosnia and Herzegovina to set the earliest possible closing dates for Gacko, Kakanj 6 and Tuzla 5, as it seems 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 byproducts such as gypsum, and the expected results in terms of emissions reductions.

To the Kosovo authorities

- Urgently reduce dust emissions from Kosova B, initially by reducing operating hours to meet the plant's ceilings until the modernisation project is complete.
- 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.
- Use the process of defining the National Energy and Climate Plan for Kosovo to set the earliest possible closing dates for Kosova A and Kosova B. Based on this, 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 minimum, impose dissuasive penalties on EPCG for illegally operating the Pljevlja coal plant.¹²⁵
- Develop a plan B in case the Pljevlja modernisation does not go as planned.
- Use the NECP process to develop a more realistic coal phase-out year than 2035.

¹²⁵ The changes to the Law on Industrial Emissions in December 2022 do not make its operation less illegal – see Montenegro section.

To the North Macedonia authorities

- Formalise the closure of REK Oslomej and TEC NEgotino.
- Stick to 2027 as the planned coal phase-out date and do not open new coal mines.
- Urgently address the high dust and sulphur dioxide emissions at Bitola B1+2. Keep operating hours as low as possible to comply with ceilings until the plant is closed.

To the Serbia authorities

- Urgently clarify to the public the reasons why the Kostolac B De-SO_x was not working for so long, why emissions were still higher than the ceiling in 2022, and what is being done to fix this. Publish emissions data in real time online.
- The new Kostolac B3 unit must not start operating unless it complies with the LCP BREF standards.¹²⁶
- Ensure the timely and effective completion of the ongoing projects to fit desulphurisation equipment at Nikola Tesla A3-6 and TEN-T 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 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 depending on the plants.

To the Energy Community Secretariat

- Continue to assist the Contracting Parties in the development of their National Energy and Climate Plans, ramping up investments in sustainable forms of renewable energy and on carbon pricing, the phasing out of coal subsidies and preparing for a just transition.
- Issue a reasoned opinion on Serbia regarding its NERP breaches and open a case on the Morava opt-out; finalise the other ongoing NERP and opt-out cases.
- Continue to clarify to the Montenegrin public that there are no ongoing 'negotiations' with the Energy Community as regards Pljevlja.

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.
- Ensure that the potential exceptions from the carbon border adjustment mechanism 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 IPA III financing and other international finance supports energy transition rather than the lifetime extension of coal power plants, in order to ensure the 'polluter pays' principle is applied. Likewise, international finance must not support any other fossil fuels, in order to avoid creating further fossil-fuel lock-in.

¹²⁶ We recommend dropping the investment completely, for climate, health and economic reasons; however, the recommendation listed is derived from the contents of this report.

Annex 1

Materials and methods

The emissions of Western Balkans coal power plants were collected from the [EIONET Central Data Repository](#). 2022 data will only within the next few months be verified by the European Environment Agency. Where available, we have used verified emissions figures from the European Environment Agency for 2018 - 2021, which may lead to some figures being somewhat different than those quoted in the previous Comply or Close reports. 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.



Comply or Close 2023

Five years of deadly legal breaches
by Western Balkan coal plants

*Drmno mine, Serbia
Photo: CEE Bankwatch Network*

JUNE 2023