

2022 REPORT UPDATE

Comply or Close

How Western Balkan coal plants breach air pollution laws and what governments must do about it

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Comply or Close 2022

How Western Balkan coal plants breach air pollution laws and what governments must do about it

*Banovići mine, Bosnia and Herzegovina
Photo credit: Denis Žiško*

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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

In 2021, air pollution from Western Balkan coal power plants continued to be massive and deadly. The entry into force of new air pollution standards on 1 January 2018 should have brought reductions in harmful emissions from coal plants across the region. But in 2021, sulphur dioxide emissions from coal power plants across the region still flagrantly breached these legal limits.

Although dropping slightly compared to 2020, sulphur dioxide (SO₂) emissions from plants included in the National Emissions Reduction Plans (NERPs)¹ of Bosnia and Herzegovina (BiH), Kosovo, North Macedonia and Serbia were still five times as high as allowed.

Dust emissions from coal plants included in the NERPs even increased compared to previous years, to nearly 1.8 times as much as allowed.

Only nitrogen oxides (NO_x) emissions were still below the sum of the countries' ceilings for 2021: 0.9 times as much as allowed. However, BiH and Kosovo breached their national 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.

As last year's edition of *Comply or Close* showed, this is 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.²

The Secretariat also opened a dispute settlement case against Montenegro in April 2021,³ for operating the Pljevlja coal plant beyond the 20,000 hours allowed under the opt-out regime after 1 January 2018. By the end of 2021, the plant had already operated for 27,453 hours since 1 January 2018.

In 2021, Serbia's NERP plants were the highest SO₂ emitters, with 249,859 tonnes, followed by BiH with 184,092 tonnes. Both countries somewhat reduced their SO₂ emissions compared to 2020.

In absolute terms, Ugljevik in BiH was once again the highest-emitting unit for SO₂ in the region in 2021, with 86,774 tonnes. This was similar to 2019, showing that the desulphurisation equipment clearly did not work during 2021, two years after testing supposedly began.

Kostolac A2 in Serbia was, for the first time, the worst offender in terms of breaching its individual SO₂ ceiling in 2021, emitting 13 times as much as allowed. It was followed by Tuzla 6 in BiH, with 11.6 times as much as allowed, and Ugljevik and Kakanj 7, with around ten times as much as allowed.

Kostolac B in Serbia finally started to decrease its sulphur dioxide emissions in 2021. Its desulphurisation unit was inaugurated in 2017, yet as of early May 2022 it still does not yet have an operating permit, and it is not clear why. Kostolac B emitted 26,015 tonnes of SO₂ – a significant reduction compared to 95,097 tonnes in 2020 – but still 1.6 times as much as allowed.

The absolute highest dust emitter in 2021 was Gacko in BiH, whose emissions rose to no fewer than 16.3 times as much as allowed.

Gacko also had the highest NO_x exceedance in 2021, emitting more than twice as much as allowed, though Nikola Tesla A4-A6 and Nikola Tesla B1-B2 in Serbia emitted the most in absolute terms – more than eight thousand tonnes each.

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

³ Energy Community Secretariat, [Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'](#), 20 April 2021.

The trend of flagrant breaches looks set to continue and intensify, as during winter 2021-2022, several Western Balkan countries suffered from electricity crises 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. These have led to rollback in terms of coal phase-out and pollution control, as governments scramble to secure electricity in whatever way possible.

For example, North Macedonia, while remaining committed to increasing renewables investment, has suggested it may delay its coal phase-out from 2027 to 2030 and plans two new coal mines.

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.

Such difficulties in day-to-day power sector operations should in theory show the urgency of a sustainable energy transition. However, in practice they mainly suck resources and attention and distract decision makers and utilities even further from public health and the environment.

However, the need for Western Balkan governments and utilities 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 limit their operation to 20,000 hours and then close promptly,⁴ and North Macedonia needs to stick to its 2027 coal phase-out date and redouble efforts to be ready for it.

Other governments and utilities also need to make more realistic plans for the closure of 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. In the meantime, their operating hours need to be reduced, to keep pollution to a minimum.

This of course requires consideration of security of supply, but demand can also be reduced by other means such as reducing distribution losses, other energy efficiency measures, and use of efficient heat pumps for heating instead of electrical resistance heaters. Closing plants early will also mean that plans for a just transition of the coal mining regions need to be speeded up, and need to be planned in a participatory manner.⁵

For those plants which cannot be closed within the next few years, it is most urgent to ensure that the Ugljevik and Kostolac B desulphurisation units function properly. Investments in desulphurisation and dust control equipment also need to be speeded up in a few selected cases where they will pay off, and in the meantime, operating hours need to be reduced to decrease the pollution burden.

In order to achieve efficiency of investments and maximise their benefits for human health, any new pollution control equipment should ensure that plants reach the latest EU standards,⁶ rather than just the obligatory minimum ones. It is also crucial to ensure that the equipment is of sufficient quality and that it is used in reality. Publishing real-time emissions data from continuous monitoring would help to build public trust that this is really the case.

More broadly, the Energy Community needs to have stronger enforcement tools at its disposal, for the benefit of human health and the environment. The Energy Community Treaty's dispute settlement mechanism needs to be strengthened to include dissuasive penalties for breaches, and mechanisms for CO₂ and potentially also pollution pricing need to be introduced in the Energy Community countries to level the playing field in the European electricity market.

⁴ *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.*

⁵ *For more information, see also CEE Bankwatch Network, [Eight steps for a just transition in the Western Balkans](#), 2021.*

⁶ *Commission Implementing Decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants, 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).*

Introduction

Since the Large Combustion Plants Directive (LCPD) entered into force in the Energy Community in 2018, we have analysed the countries' compliance with their NERPs in three editions of the *Comply or Close* report. This year, we look at the non-compliance in 2021 compared to the previous three 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.

National Emissions Reduction Plans (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 is only one of the options for complying with the Directive; the countries chose whether to develop one or not.⁷ 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 certain 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 is therefore not just a matter of compliance, but of life and death. As demonstrated in last year's 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.⁸

Taking action to reduce pollution is therefore imperative and long overdue. This fourth *Comply or Close* report looks at the official reported data for 2021 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.

⁷ Except Montenegro, which only has one large combustion plant and therefore cannot add up the total of several plants to make a national ceiling.

⁸ CEE Bankwatch Network and Centre for Research on Energy and Clean Air (CREA), *Comply or Close*, September 2021.

Regional overview of pollutant emissions⁹

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 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 12 years after signing the Treaty to do so. But despite this, not one of the countries with large combustion plants¹⁰ ensured that their coal power plants complied with the emission limit values from the Directive by the beginning of 2018, or even by the end of 2021, four years later.

Nor did any of the four countries with NERPs – Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia – comply with the ceilings for sulphur dioxide or dust they had committed to in their plans. In fact, from 2018 to 2020, sulphur dioxide emissions from the coal power plants included in the NERPs were, in total, around six times as high as the sum of the countries' emissions ceilings,¹¹ and in 2020 absolute sulphur dioxide emissions even increased. Total dust emissions were also almost 1.6 times as high as the sum of the allowed ceilings, with only emissions of nitrogen oxides remaining within the limits set by the NERPs.

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.¹²

Figures reported to the European Environment Agency¹³ by Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia for 2021 show a slight decline in sulphur dioxide emissions in 2021 compared to previous years, but not as much as would be expected considering that desulphurisation units have been fitted at Kostolac B in Serbia and Ugljevik in Bosnia and Herzegovina. Overall, sulphur dioxide emissions are still more than five times as high as allowed by these countries' NERPs.

⁹ 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.

¹⁰ Albania has no functional large combustion plants. The 98 MW oil and gas plant at Vlore has never worked commercially due to technical problems.

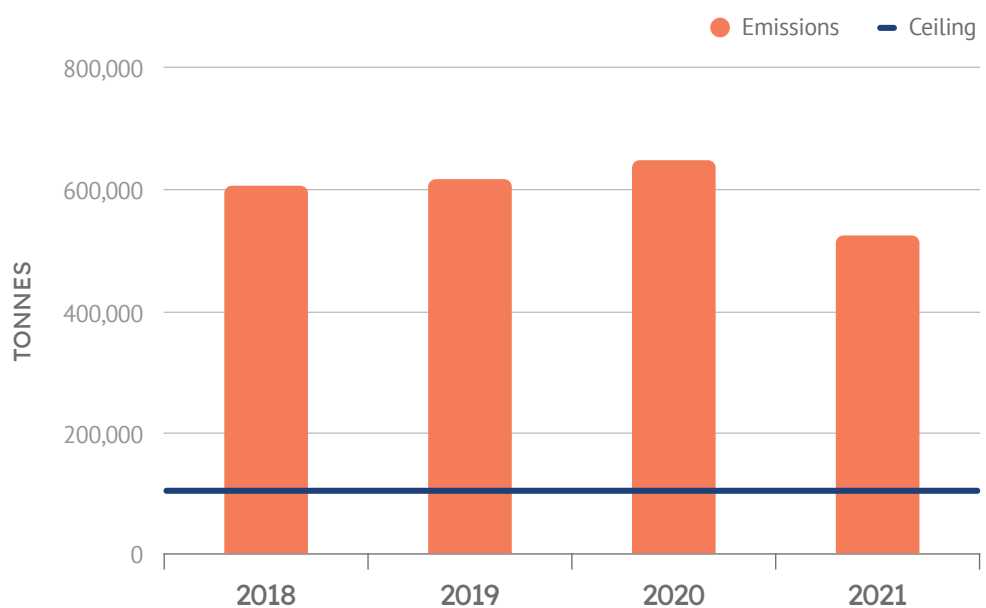
¹¹ In some cases, these ceilings also include emissions from gas or oil plants, which are not included in our study, so the exceedances by the coal plants are particularly high.

¹² Energy Community Secretariat, [Secretariat initiates dispute settlement procedures against four Contracting Parties in relation to NERPs](#), 16 March 2021.

¹³ See [EIONET Central Data Repository](#) under the country name > European Union obligations > Reporting on combustion plants

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

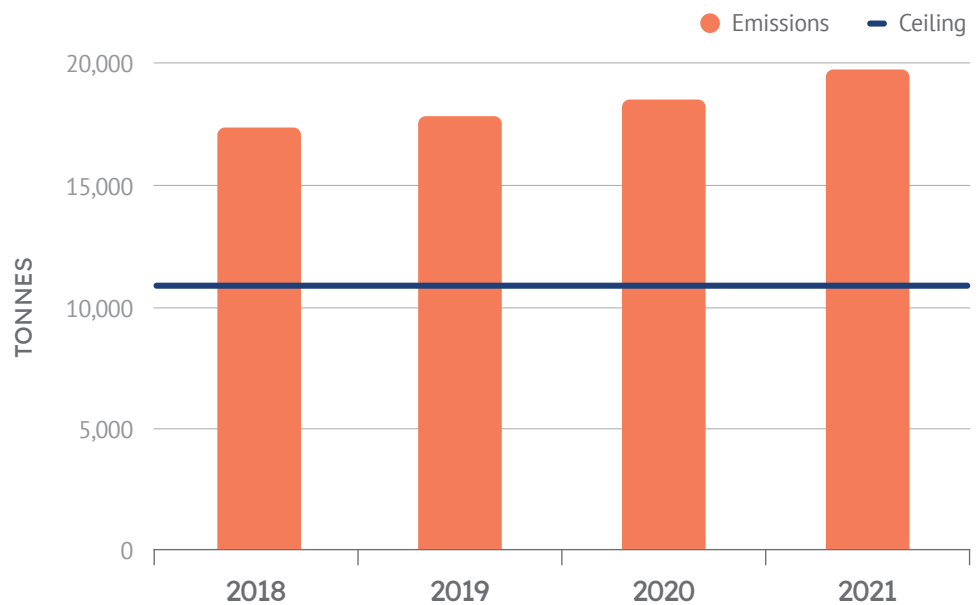
Figure 1: Sulphur dioxide emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021



Moreover, alarmingly, dust emissions have increased rather than decreased and in 2021 were nearly 1.8 times as high as allowed by the countries' NERPs, compared to 1.6 times in 2020. Kosovo, Bosnia and Herzegovina and North Macedonia exceeded their national ceilings for dust, with the Gacko plant in BiH by far the worst offender – emitting no less than 16 times as much as allowed!

Dust	Emissions	Ceiling
2018	17,414	11,199
2019	17,557	11,199
2020	18,246	11,199
2021	19,808	11,179

Figure 2: Dust emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

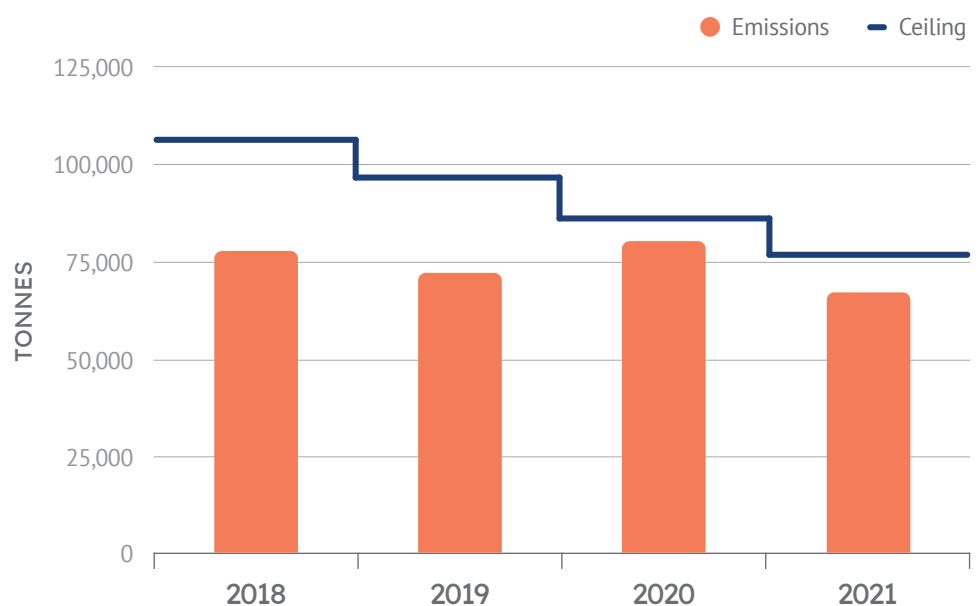


Only total emissions of nitrogen oxides were still below the combined regional total ceiling for 2021, at around 0.9 times as much as the allowed limit.

However, Kosovo and Bosnia and Herzegovina exceeded their ceilings. With the annual ceilings tightening every year, more 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

Figure 3: Nitrogen oxides emissions from the Western Balkan NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021



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 Directive¹⁴ also 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.

In 2021, Serbia's NERP plants were the highest SO₂ emitters, with 249,859 tonnes, followed by Bosnia and Herzegovina with 184,092 tonnes. Both countries somewhat reduced their emissions in 2021 compared to 2020 (when Serbia emitted 333,602 tonnes of SO₂, and BiH 220,411 tonnes).

In absolute terms, Ugljevik in Bosnia and Herzegovina was once again the highest-emitting unit for SO₂ in the region in 2021, with 86,774 tonnes. This was lower than in 2020 but similar to 2019, showing that the desulphurisation equipment clearly did not work during 2021, two years after testing supposedly began (see the Bosnia and Herzegovina profile for more details). It remains to be seen when and 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, Kostolac A2 in Serbia was, for the first time, the worst offender in 2021, emitting 13 times as much as allowed.** It was followed by Tuzla 6 in BiH, which emitted 11.6 times as much as allowed, and Ugljevik and Kakanj 7, both of which emitted around ten times as much as allowed.

Kostolac B, which in previous years was always one of the highest absolute and relative sulphur dioxide emitters, finally started to decrease its emissions in 2021. Its desulphurisation unit, installed by the China Machinery Engineering Corporation (CMEC), which was inaugurated in 2017, finally started test operations in October 2020.¹⁵ Yet as of early May 2022, it still does not yet have an operating permit, and it is not clear why. Kostolac B emitted 26,015 tonnes of SO₂, which is a significant reduction compared to 95,097 tonnes the previous year but still represents 1.6 times as much as the plant is allowed to emit under the NERP.

Concerning dust, regionally the absolute highest emitter in 2021 was Gacko in Bosnia and Herzegovina, whose emissions rose massively from an already high 1,656 tonnes in 2020 to an astonishing 4,960 tonnes in 2021. This meant that it emitted no fewer than 16.3 times as much dust as allowed in 2021. This put it far ahead of the previous year's worst offender, Kosova B unit 1, which however did not see any improvements either and still emitted 6.8 times as much dust as allowed (2,801 tonnes). Other very high dust emitters in the region included Kosova B2, emitting 6.3 times as much as allowed.

For nitrogen oxides, Gacko in Bosnia and Herzegovina had the highest exceedance in 2021, emitting more than twice as much as allowed – 4,359 tonnes. Nikola Tesla A4-A6 and Nikola Tesla B1-B2 in Serbia emitted much more in absolute terms – more than 8,000 tonnes each – but did not exceed their allotted ceilings.

Going beyond the countries with NERPs, Montenegro continued to be in breach of the LCPD in 2021. By the end of 2020, the plant had already operated for 21,003 hours since 1 January 2018,¹⁶ but it did not stop there. For this reason, the Energy Community Secretariat opened a dispute settlement case against Montenegro in April 2021.¹⁷ In 2021, the plant operated for 6,450 more hours.¹⁸

Thus, on the regional level, four years after the LCPD entered into force in the Energy Community, in 2021 there was finally a slight decrease in sulphur dioxide and nitrogen oxides emissions, but dust emissions increased instead of decreasing. This is particularly inexcusable considering that dust abatement technologies are less expensive than desulphurisation equipment.

¹⁴ Article 12 of the [Large Combustion Plants Directive](#)

¹⁵ Beta, ['Ministarstvo: Emisije sumpordioksida u Kostolcu B u okviru propisanih vrednosti'](#), N1, 30 April 2021.

¹⁶ Operating hours from Montenegro reports to the European Environment Agency, EIONET, [Central Data Repository for 2018, 2019 and 2020](#).

¹⁷ Energy Community Secretariat, [Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'](#), 20 April 2021.

¹⁸ European Environment Agency, EIONET, [Central Data Repository](#), reported 15 April 2022.

Energy crisis diverts attention from tackling pollution

During the winter months of 2021 and 2022, 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.

Serbia imported electricity worth EUR 530 million between 12 December 2021 and 20 April 2022¹⁹ and forced the acting Director of its power utility Elektroprivreda Srbije to step down after coal quality problems led to outages at the Nikola Tesla A plant, leaving thousands of people without electricity.²⁰ It even started importing lignite from neighbouring Montenegro.²¹

North Macedonia re-ignited the antiquated Negotino heavy oil power plant which had not been used for twelve years,²² and imported lignite from neighbouring Kosovo. These activities, together with the additional expenses for district heating in Skopje, forced the government to support the work of electricity utility AD ESM with more than EUR 170 million. At the same time, electricity imports were higher than usual and cost the country a little under EUR 35 million just for November 2021 to February 2022.²³

In December, Kosovo suffered power shortages and rationing due to technical problems at the Kosova B plant,²⁴ while Albania stopped almost all state-owned hydropower generation in March 2022²⁵ due to low water levels and announced its intention to hire floating oil-fired power plants.²⁶

These developments have led to rollback in terms of coal phase-out and pollution control, as governments scramble to secure electricity in whatever way possible. North Macedonia, while remaining committed to increasing renewables investment, has suggested it may delay its coal phase-out from 2027 to 2030 and plans to invest in two new coal mines.²⁷

In March, 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, below). Such difficulties in the day-to-day operations of the power systems in theory ought to show the urgency of a sustainable energy transition. However in practice they mainly suck resources and divert decision makers' attention even further away from public health and the environment.

¹⁹ Danilo Savić, 'Srbija uvezla struju u vrednosti od najmanje 500 miliona evra od početka 2022', Nova.rs, 9 May 2022.

²⁰ Katarina Stevanović, 'Srbija, struja i TENT: Zašto je stala najveća termoelektrana, hiljade ljudi bez grejanja, manji računi onima koji su ostali bez struje', BBC, 14 December 2021.

²¹ Vladimir Spasić, 'EPS dogovorio uvoz uglja iz Crne Gore', Balkan Green Energy News, 4 April 2022.

²² Dragana Petrushevska, 'N. Macedonia starts up TEC Negotino power plant - report', SEENews, 16 December 2021.

²³ Government of the Republic of North Macedonia, Бектешки - Ковачевски: Со владините мерки и менаџирањето од АД ЕСМ успешно се пребродија кризите со електрична и топлинска енергија, 1 April 2022.

²⁴ Fatos Bytyci, 'Kosovo introduces power cuts due to energy crisis', Reuters, 22 December 2021.

²⁵ Fatos Bytyci, 'Albania dims lights as drought, price spike spark energy crisis', Reuters, 21 March 2022.

²⁶ Energetika.net, 'Albania to launch two floating power plants in 3 months', Energetika.net, 6 April 2022.

²⁷ Mihajlo Vujasin, 'Environmentalists oppose lignite mine projects in North Macedonia', Balkan Green Energy News, 5 April 2022.

Nikola Tesla A power plant, Serbia
Photo credit: CEE Bankwatch Network

Country profiles

Bosnia and Herzegovina (BiH)

Compliance with the NERP ceilings in 2021

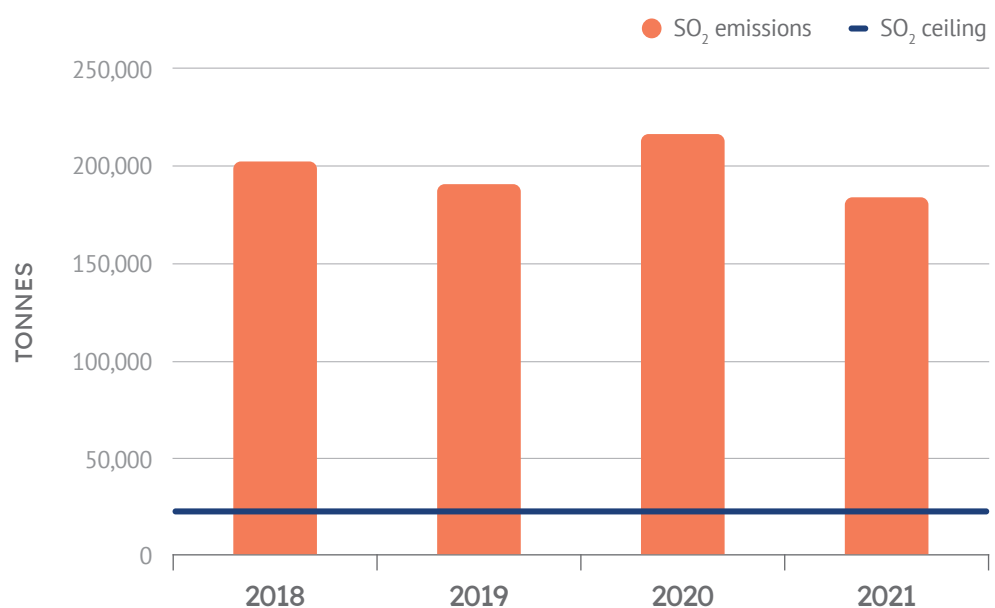
Bosnia and Herzegovina's NERP²⁸ covers seven coal-fired units²⁹ and one smaller industrial power plant using heavy fuel oil.

Another three coal plants are subject to limited lifetime derogations ('opt-outs'), allowing 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. These three are Tuzla 3, Tuzla 4 and Kakanj 5.³⁰

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

The plants in Bosnia and Herzegovina's NERP, along with those in Kosovo's, are notable for not complying with the pollution ceilings for any of the required pollutants: sulphur dioxide, dust or nitrogen oxides.

The most serious breaches are for sulphur dioxide. **In 2021, sulphur dioxide emissions from the NERP plants in BiH reached more than eight times as much as allowed** – 184,092 tonnes compared to the ceiling of 22,195 tonnes. This was less than the SO₂ emissions in 2020 (220,411 tonnes), but not by as much as would be expected considering the installation of desulphurisation equipment at the Ugljevik plant. In fact, although the largest decrease was noted at Ugljevik, several other units also emitted somewhat less SO₂ than in 2020, presumably due to lower operating hours or better quality coal.



²⁸ USAID, [National Emission Reduction Plan for Bosnia and Herzegovina](#), November 2015.

²⁹ 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.

³⁰ Energy Community Secretariat, [Report on the final list of opted-out plants](#), April 2018.

Figure 4: Sulphur dioxide emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

In absolute terms, in 2021 the Ugljevik plant had the highest SO₂ emissions – 86,774 tonnes in 2021 – by far the highest in both BiH and the Western Balkans as a whole. This was lower than 2020 but similar to 2019, showing that the desulphurisation equipment clearly did not work during 2021.

Unlike in earlier years when Kakanj 7 had the highest exceedance of its NERP emissions limit, in 2021 it was Tuzla 6 which had the highest exceedance in BiH for sulphur. It exceeded its NERP limit by 11.6 times and also increased its emissions in absolute terms. While the decrease in SO₂ emissions from Kakanj 7 is likely due to lower operating hours, this cannot be the reason for the increase in Tuzla 6's SO₂ emissions, as it worked slightly fewer hours in 2021 than in 2020.

Dust emissions in 2021 leapt up to 6,040 tonnes, compared to 2,686 tonnes in 2020. This put BiH more than 3.5 times as high as its dust ceiling of 1,689 tonnes.

The increase was largely due to massive dust emissions from the Gacko plant, which were more than sixteen times as high as the plant's ceiling, compared to five times as high in 2020. The reason for this is not clear, as its operating hours were slightly higher in 2020 than in 2021.

Dust emissions from the Ugljevik plant also continued to be more than twice as high as the plant's ceiling.

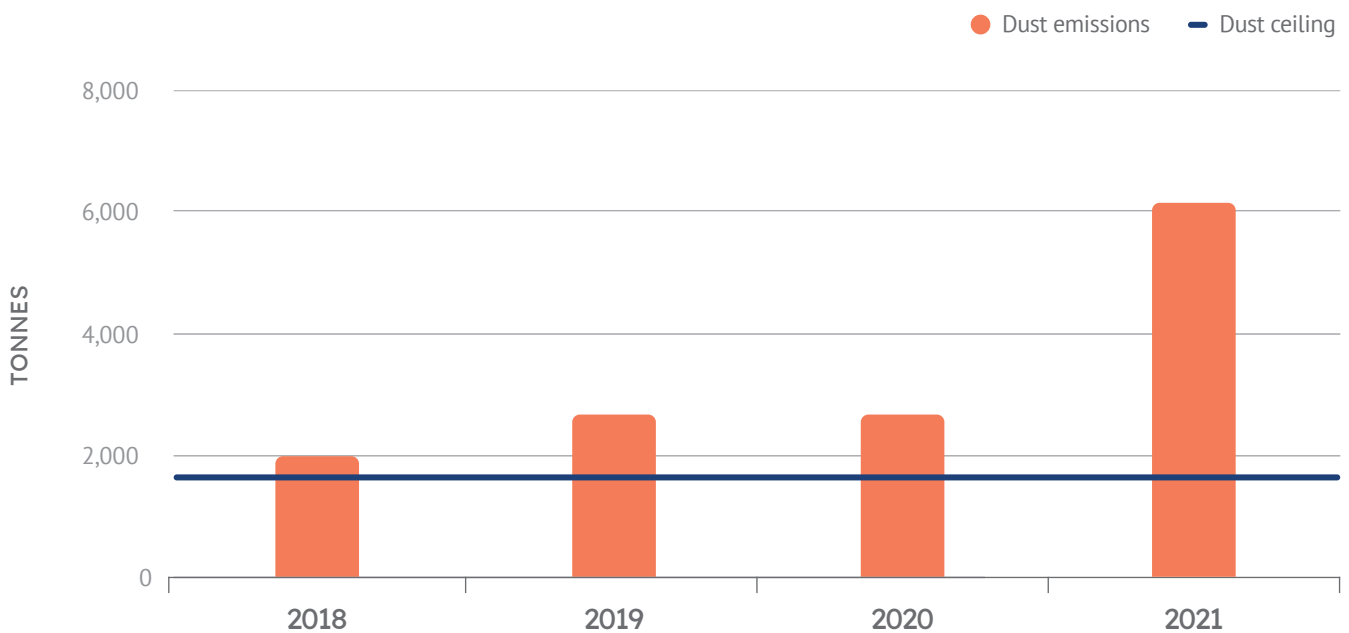


Figure 5: Dust emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

Nitrogen oxides emissions from BiH's NERP coal plants in 2021 totalled 14,273 tonnes – somewhat less than the 16,367 tonnes emitted in 2020 but similar to 2019.

NO_x emissions in 2021 were 1.3 times as high as the ceiling of 10,700 tonnes. In 2021, Gacko had the highest exceedance for NO_x, with more than double the allowed emissions, whereas in 2020 it was Kakanj 7.

Lower operating hours might explain Kakanj 7's decreased NO_x emissions, but Gacko had slightly lower operating hours in 2021 compared to 2020, so the reason for its increase is not clear.

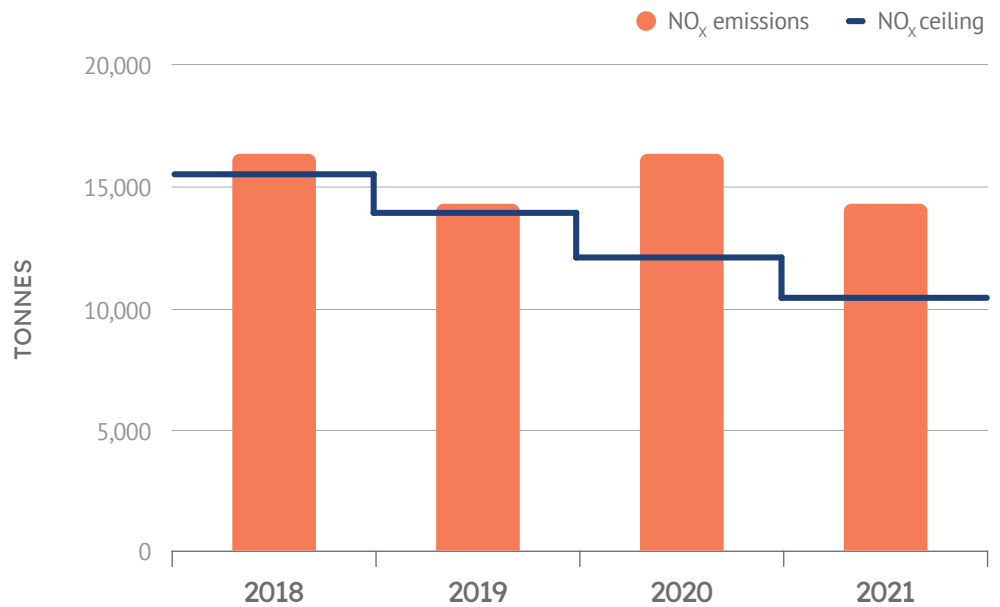


Figure 6: Nitrogen oxide emissions from Bosnia and Herzegovina's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

Bosnia and Herzegovina (2021)

³¹ 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.

SO ₂ ceiling ³¹	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
22,195	184,092	1,689	6,041	10,700	14,273

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



Illegal lifetime extension of Tuzla 4 and Kakanj 5

During winter 2021-2022, amid rapidly rising electricity prices across Europe, at the end of December 2021, the Federation of BiH's (FBiH) parliament adopted a Law Amending the Law on Electrical Energy of the Federation of BiH in order to limit potential electricity price rises to 20 per cent for qualified customers from one year to the next.³²

This was followed by a decision by the government of FBiH taken on 7 January 2022, implementing this new amendment,³³ which tasked the Federal Ministry for Energy, Mining and Industry with carrying out an analysis of the impacts of the application of the price rise limit within three months of the amendment entering into force.

On 9 February 2022, Elektroprivreda Bosne i Hercegovine (EPBiH), one of the Federation of BiH's public electricity utilities, sent a letter to the prime minister of FBiH stating that the decision to limit price rises would cause the company financial problems and proposing two scenarios to move forward. One of these involved extending the lifetime of unit 4 of the Tuzla Power Plant and unit 5 of the Kakanj Power Plant and allowing generation of around 430 GWh annually to be sold on the open market for higher prices.

Both of these plants have been operating under the opt-out regime and by the end of 2021 were 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.³⁴

On 24 February 2022, the government of the Federation of Bosnia and Herzegovina noted the request from EPBiH³⁵ and in March 2022 both houses of the Federation of BiH parliament approved the abandoning of the opt-out regime for Tuzla 4 and Kakanj 5.³⁶ The proposal 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, as made clear by Decision D/2013/05/MC-EnC, if they meet the emission limit values set out in Part 2 of Annex V to Directive 2010/75/EU. Nowhere in the documentation provided by EPBiH to the government or the documentation provided by the government to the FBiH parliament does it suggest that any investments are planned that would make such compliance possible. Nor are such investments included in the most recent version of EPBiH's Business Plan from December 2021.³⁷

Bankwatch and the Aarhus Centre in Sarajevo therefore submitted a complaint to the Energy Community in March 2022 and the Energy Community made a public statement³⁸ underlining the threat to public health from this illegal move.

Ongoing investments

Bosnia and Herzegovina has so far been reluctant to come up with a clear plan to phase out coal. As described above, it seems determined to squeeze every last drop of life out of even the smallest and oldest plants, beyond what is legally allowed. Official projections³⁹ that several of the NERP plants will operate beyond 2030 seem highly unrealistic given that their average age is already 41 years.

EPBiH plans to invest in desulphurisation for Kakanj 7 and Tuzla 6 but does not appear to have secured any funds for this yet. In early 2021, it opened a tender process for desulphurisation for Kakanj 7,⁴⁰ but in March 2022 BiH's report to the European Environment Agency showed that the process is still ongoing.⁴¹ Similarly, a procurement procedure is reportedly underway for desulphurisation for Tuzla 6,⁴² but again it does not seem to have been completed.

Considering how long the Ugljevik and Kostolac B3 desulphurisation projects have taken to be implemented, this does not bode well for the protection of public health in the coming years. Nor does it clarify when the other plants will be closed, or how the dust and NO_x breaches will be addressed.

³² [Zakon o dopuni Zakona o električnoj energiji u Federaciji Bosne i Hercegovine](#), Official Gazette of FBiH, 1/22

³³ [Odluka o ograničavanju povećanja cijena snabdijevanja električnom energijom](#), Official Gazette of FBiH, 3/22

³⁴ Operating hours for 2018 to 2021 reported to the [European Environment Agency](#)

³⁵ Government of the Federation of Bosnia and Herzegovina, [304. sjednica Vlade FBiH](#), 24 February 2022.

³⁶ Energy Community Secretariat, [Environmental concerns increase with decision on lifetime extension of Tuzla 4 and Kakanj 5](#), 25 March 2022.

³⁷ EPBiH, [Revidovani plan poslovanja za period 2021. - 2023. godina](#), December 2021.

³⁸ Energy Community Secretariat, [Environmental concerns increase with decision on lifetime extension of Tuzla 4 and Kakanj 5](#), 25 March 2022.

³⁹ E.g. from the [Framework Energy Strategy of Bosnia and Herzegovina until 2035](#), 68, accessed 2 July 2021.

⁴⁰ Akta, [Otvoren poziv za izgradnju postrojenja za odsumporavanje u TE Kakanj, posao od 117 mil. KM](#), 4 January 2021.

⁴¹ Bosnia and Herzegovina, [LCP Emissions in 2021](#), European Environment Agency, March 2022.

⁴² *Ibid.*

In the case of Ugljevik, the EUR 85 million⁴³ desulphurisation equipment is still not functioning 13 years after the financing contract was signed with the Japan International Cooperation Agency (JICA) back in 2009.⁴⁴ Works started only in 2017 and test operations began in December 2019.⁴⁵ However, in February 2020, technical problems were reported. The plant's dust filters, overhauled by the Czech company Termochem⁴⁶ at a cost of around EUR 10 million, were faulty, and their proper functioning is a precondition⁴⁷ for desulphurisation.

In February 2021, RiTE Ugljevik sought 'technical assistance' to obtain an operating permit, adding an extra EUR 100,000 to the costs of this project.⁴⁸ The contract was awarded to a company owned by the mayor of Zvornik,⁴⁹ raising questions on why a publicly-owned utility is not capable of obtaining an operating permit itself. As of May 2022, to the best of our knowledge the desulphurisation equipment is still not operating, two and a half years after the test operations started.

Kosovo

Compliance with the NERP ceilings in 2021

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, and in 2021 they even increased compared to 2020. They were 4.4 times above the national ceiling** in Annex 2⁵⁰ of the NERP, at 5,993 tonnes, an increase from 5,867 tonnes in 2020. Kosova B's two units alone breached the national dust ceiling in 2021 by nearly 4 times (3.99), releasing a total of 5,440 tonnes of dust into the atmosphere. Unit B1 alone emitted 6.75 times above its individual ceiling, making it the country's worst emitter, and the second worst regionally.

⁴³ RiTE Ugljevik, [Postrojenje za odsumporavanje predato na upravljanje preduzeću](#), 28 October 2020.

⁴⁴ Japan International Cooperation Agency, [Commencement of works in Ugljevik TPP in Bosnia and Hercegovina](#), 15 May 2017.

⁴⁵ Iskra Pavlova, [Bosnia's Ugljevik 82 mln euro desulphurisation project nears completion](#), SEE News, 2 July 2019.

⁴⁶ ZK-Termochem [website](#), last accessed 22 May 2022.

⁴⁷ Dejan Tovilović, [Zbog nemara ugrožena investicija od 83 miliona evra](#), Capital.ba, 27 February 2020.

⁴⁸ Dejan Tovilović, [RiTE Ugljevik neće pokrenuti postrojenje od 165 miliona do kraja 2021?](#), Capital.ba, 9 February 2021.

⁴⁹ Dejan Tovilović, [Firma gradonačelnika Zvornika popravlja elektrofiltere na TE Ugljevik](#), Capital.ba, 12 April 2021.

⁵⁰ This annex is not part of the publicly available NERP and has been leaked to the authors of this report.

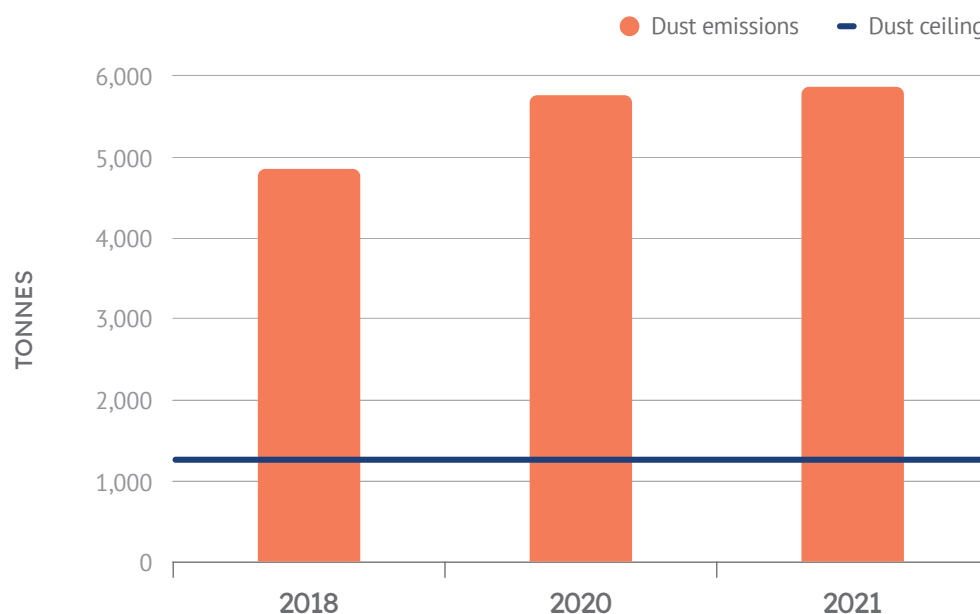


Figure 7: Dust emissions from Kosovo's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021 (2019 data is unavailable)

SO₂ emissions were 1.3 times above the national ceiling in 2021, at an absolute value of 14,631 tonnes. SO₂ recorded a considerable decrease in emissions compared to 2020, from 19,987 tonnes. It is difficult to explain this sudden drop, especially because there hasn't been any desulphurisation equipment fitted. It could be due to a smaller number of operating hours; however, this is also hard to prove because **Kosovo has been reporting the exact same number of operating hours at its five power units since 2018**. It could also be the case that a different formula for calculating the emissions was used, considering Kosova A lacks continuous monitoring equipment and Kosova B's monitoring equipment is hardly ever operational.

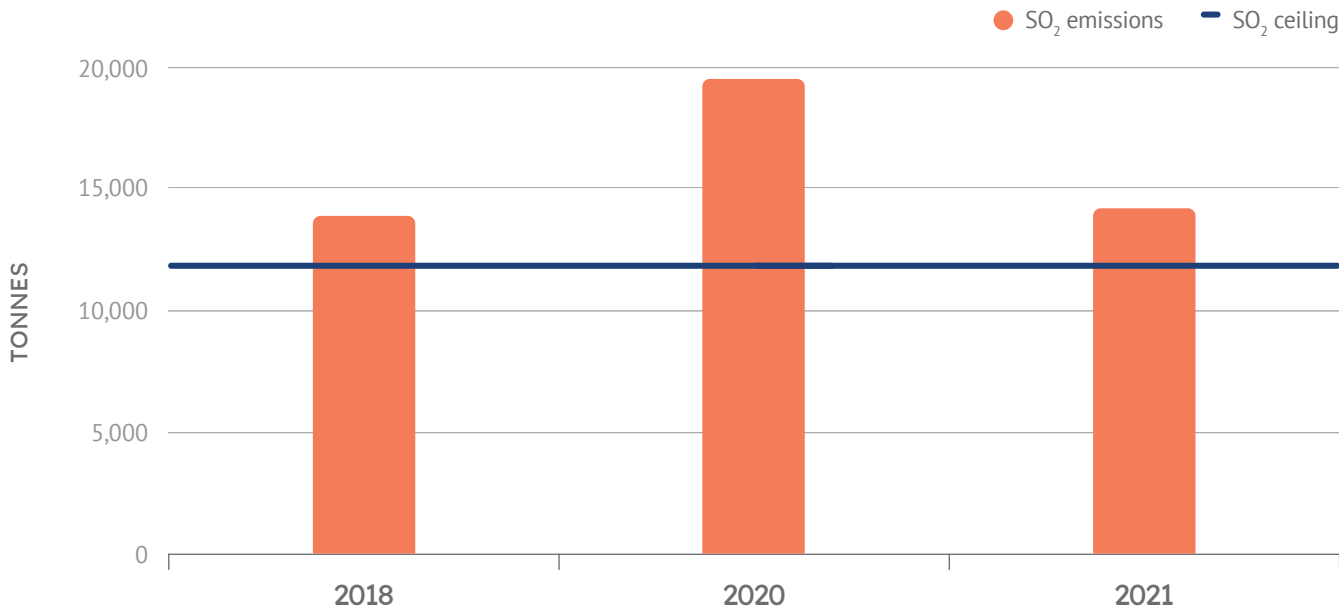


Figure 8: Sulphur dioxide emissions from Kosovo's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021 (2019 data is unavailable)

Kosovo's NO_x emissions also dropped in 2021 to levels comparable to those from 2018, at 19,595 tonnes. The country stands out for the highest breach of the NO_x ceiling – 1.44 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.

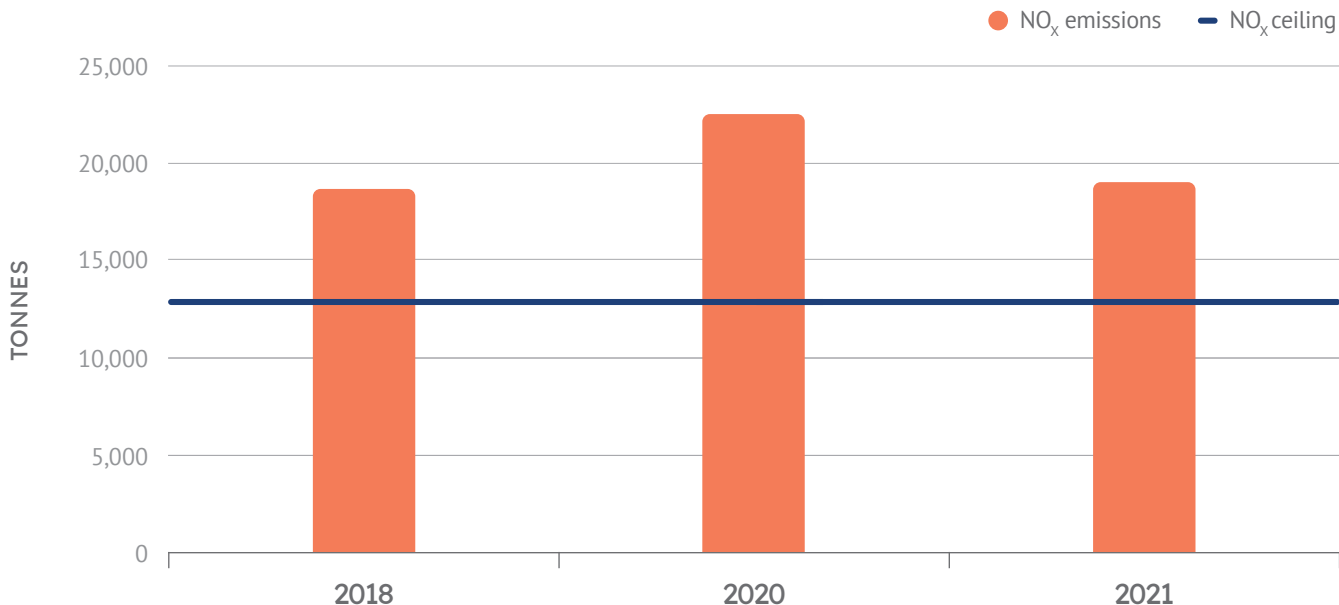


Figure 9: Nitrogen oxides emissions from Kosovo's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021 (2019 data is unavailable)



Open cast lignite mine, Kosovo
Photo credit: Balkan Green Foundation

Kosovo (2021)	SO ₂ ceiling	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
Main NERP ceiling	10,111	14,631	1,556	5,993	8,948	19,595
Annex 2	10,893		1,362		13,616	

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 document⁵¹ 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. 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,⁵² even though the ceilings for SO₂ and NO_x are higher than those in the main body of the document.

⁵¹ Government of Kosovo, [National Emissions Reduction Plan Kosovo](#), Energy Community, 2018.

⁵² '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](#), December 2014.

⁵³ Energy Community Secretariat, [Secretariat brings forward cases against three Contracting Parties for not reducing air pollution from thermal power plants](#), 23 February 2022.

⁵⁴ Government of Kosovo, [Kosovo National Emissions Reduction Plan](#), 11.

⁵⁵ European Union 4 Kosovo, [Dust and NO_x reduction measures at TPP Kosova B, Units B1 and B2](#) project profile, accessed on 22 May 2022.

⁵⁶ The Prime Minister Office, Kosovo, [Prime Minister Kurti visited the Power Plants "Kosova B" and "Kosova A"](#), 16 December 2021.

⁵⁷ Kaltrina Berila, ['B1 and central heating for Prishtina are put into operation'](#), RTV21, December 2021.2

⁵⁸ Reuters, ['Kosovo introduces power cuts due to energy crisis'](#), Reuters, 22 December 2021.

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.'⁵³

Ongoing investments

Kosovo's NERP envisaged that Kosova B1 would undergo retrofitting by 2021⁵⁴ 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 2023⁵⁵ and no information on the progress of the works has been made available to the public, but the 2021 data shows no decrease in emissions compared to 2020 at either of the two units.

Both units of the Kosova B power plant were, however, at the heart of the country's energy crisis last winter. A major defect in the turbine⁵⁶ of Kosova B2, which took the unit offline for over a month, and a leak in the boiler⁵⁷ of Kosova B1, caused the government to declare a state of emergency and apply power cuts⁵⁸ to almost all consumers, in the middle of winter. All three of Kosova A's ancient units were used at maximum capacity during this time, even though Kosova A3 is kept in reserve most of the time; thus, they released more emissions than in the previous year.

Apart from the ongoing dust and NO_x reduction project at Kosova B, no information is publicly available regarding the government's intentions to reduce sulphur dioxide emissions. All existing units are in desperate need of action on this front and have run out of time for meeting any of the mandatory timelines in the NERP.

Pljevlja coal plant continues to operate despite exceeding its permitted operating hours

Montenegro's only large combustion plant, the 225 MWe Pljevlja I lignite power plant, has only one unit, and thus could not be subject to a National Emissions Reduction Plan. Instead of making sure it was LCPD-compliant by 2018, the government and the plant's operator Elektroprivreda Crne Gore (EPCG) lost several years concentrating on the construction of the now-cancelled Pljevlja II, and did not pay sufficient attention to resolving Pljevlja I's pollution issues.

Therefore, the 'opt-out' option was chosen, in which Pljevlja I would be able to operate for a total of 20,000 hours between 1 January 2018 and 31 December 2023. After that, it either has 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.

In March 2018, Montenegro's Environmental Protection Agency issued the Pljevlja I plant an integrated environmental permit,⁵⁹ which stipulated that it must comply with the 2017 EU LCP BREF standards by 2023. As such, it is the first existing plant in the region which has been required to do so.

However, instead of spreading the available 20,000 hours evenly over the whole period from 2018 to 2023, the management of EPCG used them up as quickly as possible. By the end of 2020, the plant had already operated for 21,003 hours since 1 January 2018,⁶⁰ but it did not stop there. In 2021, the plant operated for 6,450 hours.⁶¹ In April 2021, the Energy Community Secretariat opened an infringement case against Montenegro.⁶²

Emissions in 2021

In 2021, Pljevlja's sulphur dioxide and nitrogen oxides emissions decreased somewhat, but dust emissions increased.⁶³

SO₂ emissions amounted to 40,502 tonnes in 2021 – around a third less than in 2020. The reason for the large variations in the plant's SO₂ emissions is unclear, and they are not fully accounted for by differences in operating hours in the different years.

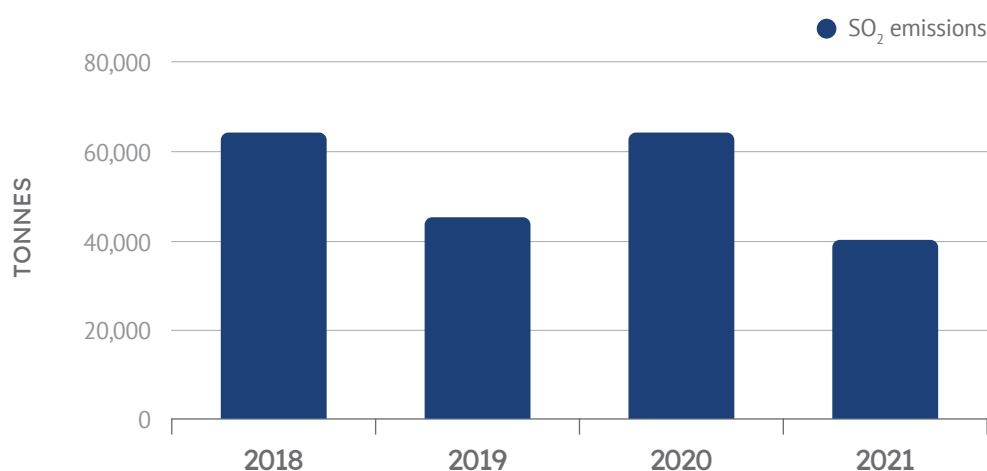


Figure 10: Sulphur dioxide emissions from Montenegro's Pljevlja coal plant, 2018 to 2021

⁵⁹ 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.

⁶⁰ Operating hours from Montenegro reports to the European Environment Agency, EIONET, [Central Data Repository](#), for 2018, 2019 and 2020.

⁶¹ European Environment Agency, EIONET, [Central Data Repository](#), reported 15 April 2022.

⁶² Energy Community Secretariat, [Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'](#), 20 April 2021.

⁶³ European Environment Agency, EIONET, [Central Data Repository](#), data for 2018, 2019, 2020 and 2021.

NO_x emissions decreased significantly between 2018 and 2021 but are still very high. Again, the reasons are unknown and are not explained by operating hours or investments.

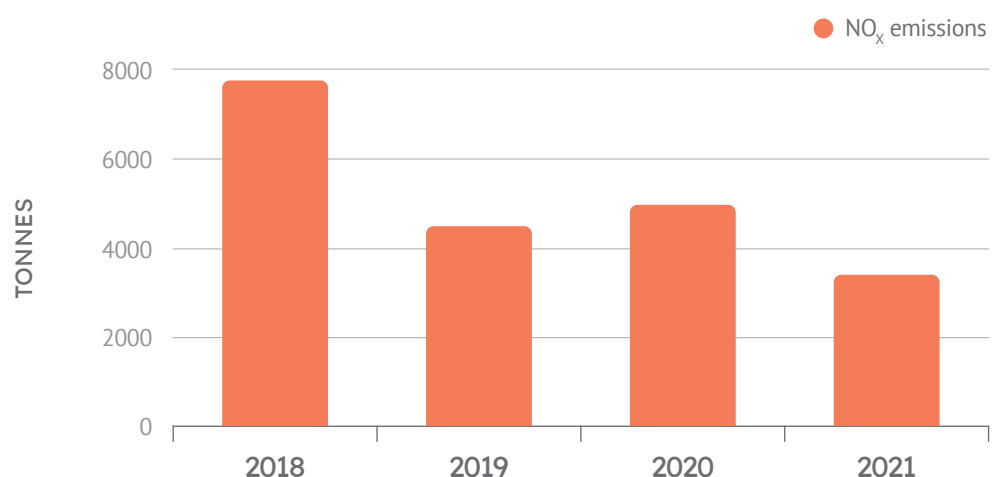


Figure 11: Nitrogen oxides emissions from Montenegro's Pljevlja coal plant, 2018 to 2021

As in previous years, Pljevlja's dust emissions increased, rather than decreased, in 2021.

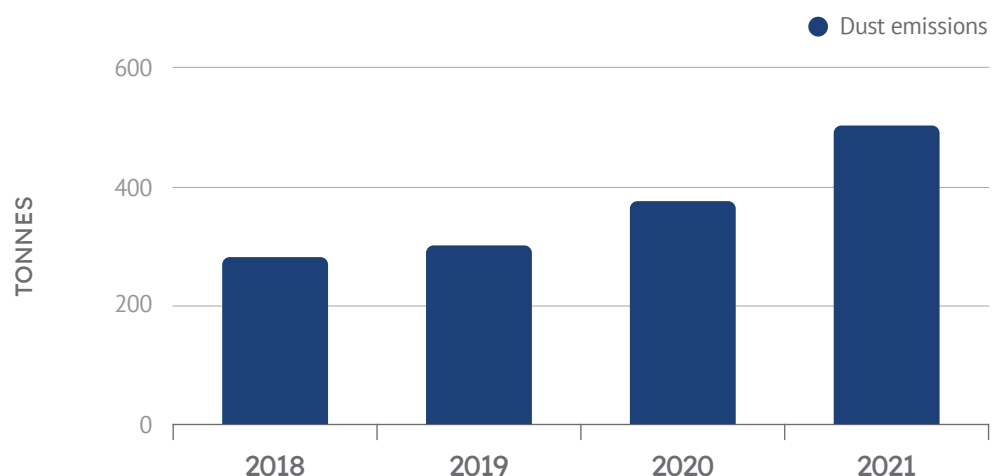


Figure 12: Dust emissions from Montenegro's Pljevlja coal plant, 2018 to 2021

Ongoing investments

In June 2020, Montenegro's previous government signed a contract with a consortium led by China's Dongfang (DEC International) to retrofit the plant to bring it in line with the EU's 2017 LCP BREF.⁶⁴

However, EPCG has never publicly proven⁶⁵ that such an investment would be economically justified, nor that the planned investments would be technically capable of bringing the plant into compliance. The prices for the bids for the modernisation varied very widely, leading both the media and one of the competing bidders, Hamon Rudis, to question⁶⁶ the technological quality of the winning bid. Hamon Rudis requested that the selection commission check the compliance of Dongfang's bid with the technical specifications in the tender documentation due to its much lower price than the other two bids.

⁶⁴ Balkan Green Energy News, '[EPCG signs agreement on TPP Pljevlja environmental overhaul](#)', Balkan Green Energy News, 10 June 2020.

⁶⁵ Goran Malidžan, '[Eko-tim: Objaviti studiju ekonomske opravdanosti ekološke rekonstrukcije TE Pljevlja](#)', Vijesti, 24 July 2021.

⁶⁶ Tender commission, '[Minutes of opening the bids](#)', 11 July 2019.



The decision⁶⁷ on the selection of the best bid stated that the tender rules did not oblige the bidders to submit technical documentation – they only had to provide statements that their offer complied with certain parameters. It is therefore, conveniently, impossible to check the technical specifications of each bid. This leaves very little information on which to assess the technical quality of the winning bid and raises serious doubts as to the quality of the project.

Another issue is that the winning consortium includes BB Solar, a company half-owned⁶⁸ by the president of Montenegro's son, Blažo Đukanović, which, as the name suggests, specialises in solar rather than coal plants.

In early April 2021, the Ministry for Capital Investments therefore asked the public prosecutor to investigate the tender process.⁶⁹

In June 2021, however, the government sent a different signal by declaring a very late coal phase-out date of 2035,⁷⁰ which would clearly require the modernisation project to go ahead. In October, this was followed by a revelation that the project would cost EUR 15 million more than originally projected.⁷¹

This made the tender even more dubious as the price was now at the level offered by the other bidders, and it is not clear why it was not repeated.

In April 2022, nearly two years after the signing of the contract, works reportedly started.⁷² It remains to be seen whether they will achieve the desired results.

⁶⁷ Elektroprivreda Crna Gora, [Decision on the best bid](#), 7 November 2019.

⁶⁸ Montenegro Ministry of Finance, [Central Register of Economic Entities](#), accessed 2 July 2021.

⁶⁹ Biljana Matijašević, ['Milioni za Termoelekttranu u Specijalnom tužilaštvu'](#), *Vijesti*, 3 April 2021.

⁷⁰ Europe Beyond Coal, [Spain and North Macedonia commit to exit coal by 2030](#), 30 June 2021.

⁷¹ Biljana Matijašević, ['Sporni da "spale" još 15 miliona'](#), *Vijesti*, 25 October 2021.

⁷² Vladimir Spasić, ['EPCG započela ekološku rekonstrukciju TE Pljevlja'](#), *Balkan Green Energy News*, 24 April 2022.

Compliance with the NERP ceilings in 2021

The North Macedonian NERP was adopted in 2017 without any public consultations or a strategic environmental assessment. It includes all eight existing large combustion plants from the energy sector.⁷³ Out of these, two have not been operational since the NERP went into force, one was put into operation in late 2021 for the first time in a decade, and two are gas-fired heating plants that were already in line with the 2017 LCP BREF.

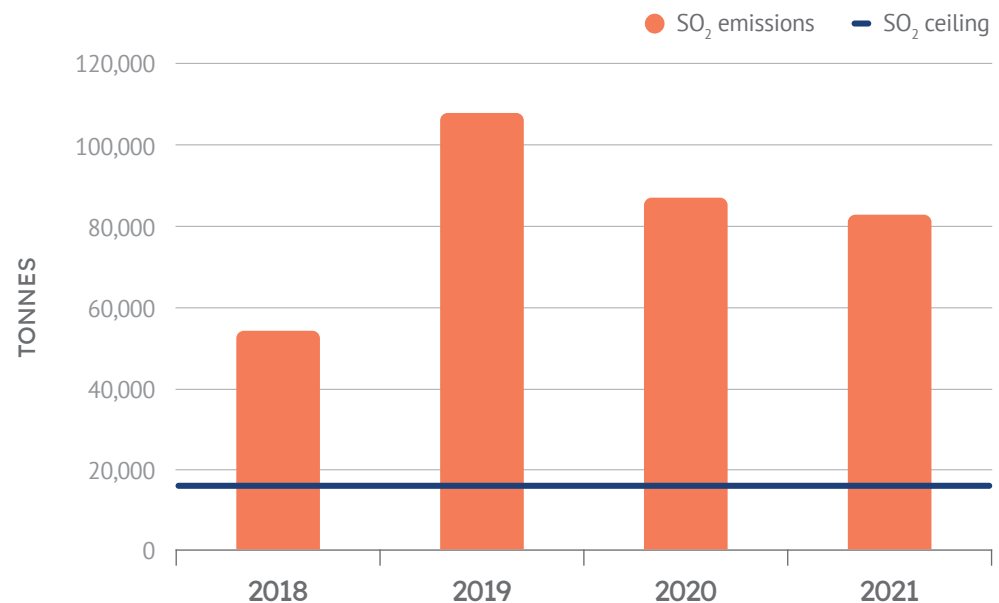
In previous years, the Bitola and Oslomej coal-fired power plants were the only large combustion plants that were relevant for overall compliance with the country's NERP. However, in December 2021, the heavy-oil-fired Negotino power plant was also brought back online because of the European energy crisis. None of these three plants have pollution control equipment installed. They are therefore all significantly contributing to North Macedonia's breach of SO₂ and dust emissions limits for the fourth year since the NERP came into force.

North Macedonia (2021)

SO ₂ ceiling	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
15,855	82,884	1,738	2,976	11,255	3,789

SO₂ emissions remained extremely high for a third year in a row. The three coal-fired large combustion plants emitted 82,884 tonnes of SO₂, a slight decrease compared to 2020, but still more than five times above the national ceiling of 15,855 tonnes. In 2021, the Bitola coal-fired power plant remained the biggest source of SO₂ emissions in the country. The stack for the first two units, Bitola B1+B2 (60,925 tonnes), and the one for the third unit, Bitola B3 (18,581 tonnes), contributed to 95 per cent of the total SO₂ emissions from large combustion plants. This makes Bitola B1+B2 the fourth highest SO₂ emitter in the region. It emitted more than **nine times as much as the plant's individual ceiling of 6,585 tonnes**. Bitola B3's emissions are 6.5 times higher than the 2,859-tonne individual ceiling.

Oslomej's contribution is 3,378 tonnes of SO₂, which is 80 per cent of the plant's individual ceiling. This is almost twice as much as in previous years and is a result of the extended operating hours of the plant during the energy crisis.



⁷³ Energy Community decision D/2013/05/MC-En – “[E]xisting plant” means any combustion plant for which the original construction licence or, in the absence of such a procedure, the original operating licence was granted before 1 July 1992.

Figure 13: Sulphur dioxide emissions from North Macedonia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

There was a small decrease in dust emissions in 2021 compared to previous years, but the two coal plants still emitted more dust than the national ceiling. The Bitola B1+B2 stack was the highest emitter, with 1,983 tonnes of dust – single handedly breaching the national ceiling of 1,736 tonnes. Bitola B3 added 638 tonnes and Oslomej 355 tonnes of dust emissions.

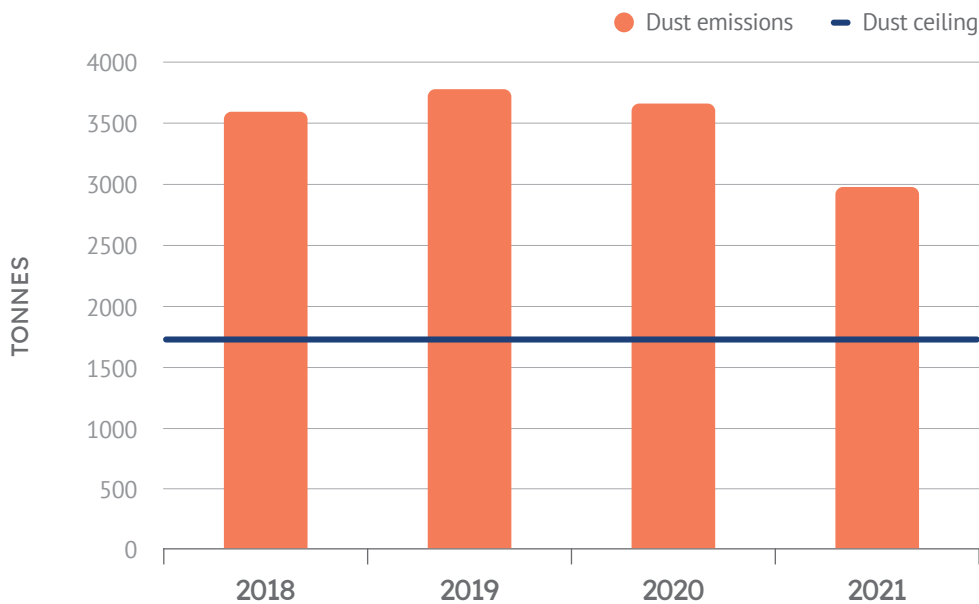


Figure 14: Dust emissions from North Macedonia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

NO_x emissions remained almost the same in 2021 as in previous years, and again lower than the unnecessarily high national ceiling. The Bitola and Oslomej plants jointly emitted 3,789 tonnes of NO_x, which is even lower than the 2027 ceiling of 6,179 tonnes, which will be in effect at the end of the NERP period. Unit 1 of the Bitola power plant has not yet been refurbished to reduce NO_x emissions and this ceiling allows for it to remain non-LCPD-compliant even after 2027. The objective is to have all plants individually compliant with the Industrial Emissions Directive Annex V requirements after 2027, and this ceiling is not in line with this objective.

Ongoing investments

The last failed effort to undertake pollution control in the coal-fired power plants was in 2019 when an unsuccessful tender was held for the reconstruction of the electrostatic precipitator in Bitola, and fruitless public consultations took place for the integrated pollution prevention and control (IPPC) permit for the plant. At the time of writing in May 2022, the permit has not yet been issued.

Instead of working towards plant closures as was planned with the Energy Strategy 2020-2040, the government and state-owned electricity company AD ESM are planning to extend the lifetime of the coal plants with the opening of new open-cast lignite mines in Zivojno for Bitola and Gusterica for Oslomej. These new developments were explained as a need arising from the energy crisis; however, it turned out that AD ESM signed the contract for the mining study and environmental impact assessment (EIA) for Zivojno in late 2019,⁷⁴ at the same time the public consultations for the Energy Strategy took place.

Although investments in new coal facilities are planned, there are no plans at all for investments in pollution control equipment. The two coal-fired power plants, and even the old heavy oil plant, are set to work for several more years with increased operating hours and without pollution control. They are already allowed to work illegally, without IPPC permits and without meeting basic environmental requirements, but this new situation puts the country on a path towards overall non-compliance with the NERP even at the end of the implementation period in 2027 and towards many more years of environmentally damaging operations.

⁷⁴ Government of North Macedonia, [Contract Award Notice no. 01-241/2018, ЛОТ 1. ИЗРАБОТКА на Главен рударски проект за експлоатација на јагленот од наоѓалиштето во Живојно со површинска технологија ЛОТ 2. РЕВИЗИЈА на Главен рударски проект за експлоатација на јагленот од наоѓалиштето во Живојно со површинска технологија ЛОТ 3. ИЗРАБОТКА на Студија за оцена на влијанието врз животната средина од рудникот Живојно](#), accessed 28 May 2022.



Compliance with the NERP ceilings in 2021

In 2021, emissions from coal power plants in Serbia once again exceeded the ceilings set out in the NERP. The breach of the SO₂ and dust ceilings was smaller than in previous years, mostly due to Kostolac B's desulphurisation equipment being operated in testing mode. However, this was undermined by a significant increase in Kostolac A's SO₂ and dust emissions.

SO₂ emissions remained a big problem in Serbia, being 4.6 times as high as the national ceiling.

This represented a decrease from 2020, when they were over six times as high. In absolute numbers the SO₂ emissions of the 14 coal-fired units included in the NERP amounted to 249,859 tonnes, while the 2021 ceiling in the NERP for 18 large combustion plants⁷⁵ is set at a maximum of 54,575.33 tonnes. The SO₂ emissions were at the lowest level since 2018, but Serbia is still in severe breach of the LCPD and the emissions are deadly for public health.

On the plant level, the biggest emitters were Nikola Tesla A4-A6, whose SO₂ emissions alone were 1.2 times as high as the national limit, with 66,314 tonnes – comparable to the previous year. Nikola Tesla B1 and B2 followed closely, with 63,857 tonnes.⁷⁶ Kostolac A2 made an entry in the country's most polluting units, having breached its individual ceiling by 13 times and emitting 34,804 tonnes, considerably higher than its 26,743 tonnes in 2020.

Kostolac A1 and A2 reported considerably higher emissions compared to the previous year, in spite of running for a similar number of hours, which raises questions about the quality of the lignite burned and about the emissions calculation.

Four years after desulphurisation equipment was fitted at Kostolac B1 and B2, the plant's emissions are still 1.6 times as high as allowed under the plant's ceiling and the investment can, to some extent, be considered a failed one, as it still has not obtained an operating permit⁷⁷ and has been running in testing mode since October 2020, way beyond the legally allowed period of one year.

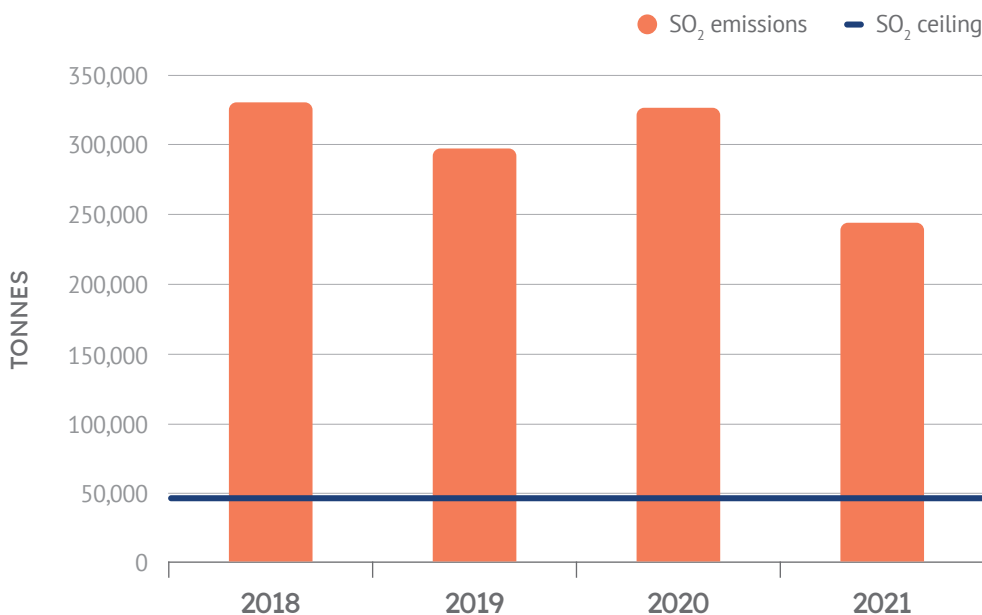


Figure 15: Sulphur dioxide emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

⁷⁵ 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, [Nacionalni plan za smanjenje emisija glavnih zagađujućih materija koje potiču iz starih velikih postrojenja za sagorevanje](#), Annex 2, February 2020.

⁷⁶ European Environment Agency, [EIONET Central Data Repository](#), 30 March 2022. Data not yet verified by the European Environment Agency.

⁷⁷ eKapija, ["RERI: EPS pune četiri godine nije prijavio upotrebnu dozvolu za Kostolac B, kako onda može da gradi novu termoelektranu?"](#), eKapija, 20 December 2021.

Dust emissions are within the national ceiling and on a downward trend; however, in 2021, Nikola Tesla's A1-A3 units emitted nearly 1.75 times as much as their ceiling: 1,805 tonnes compared to the ceiling of 1,031.79. The only other units which breached their individual ceilings were Kostolac A1 and A2, which emitted 72 and 100 tonnes, respectively, above their allowed limit.

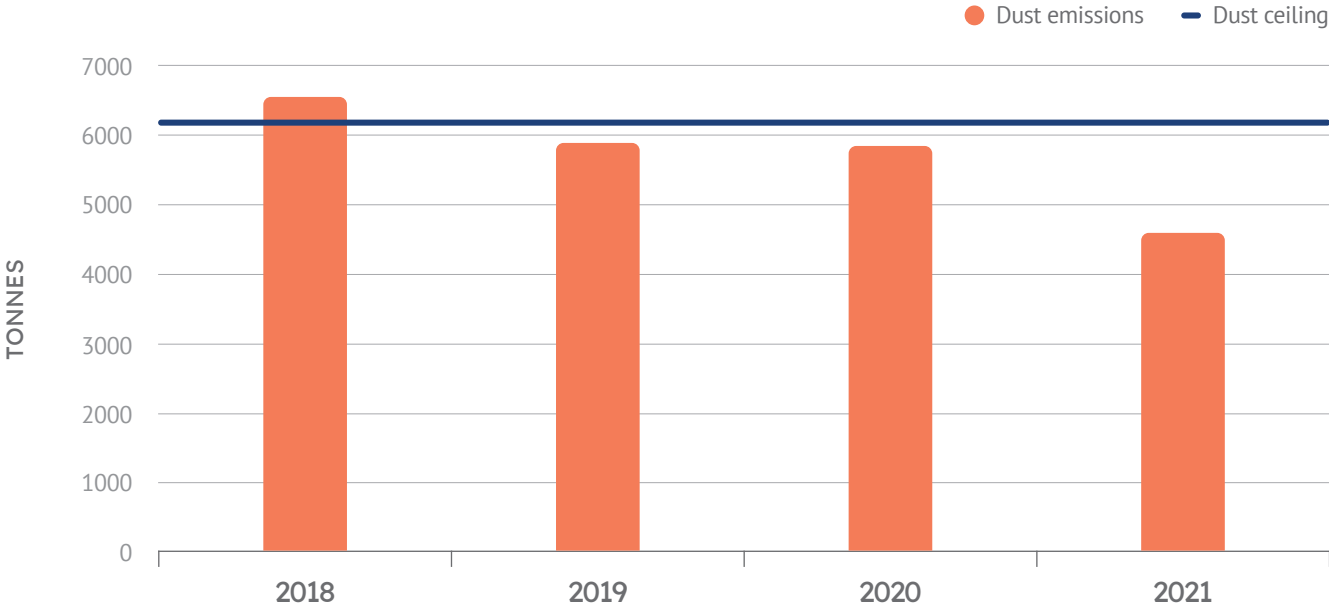


Figure 16: Dust emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

NO_x emissions in Serbia in 2021 stood at 77 per cent of the ceiling in the NERP, and a downward pattern starting in 2018 is visible. The only plant which emitted above its individual ceiling is Kostolac A2, breaching its limit by 1.5 times, emitting 1,120 tonnes of NO_x in absolute terms. However, the ceiling will continue to drop abruptly each year, and in the absence of investments in equipment to decrease NO_x emissions, there will be breaches, most likely starting in 2022.

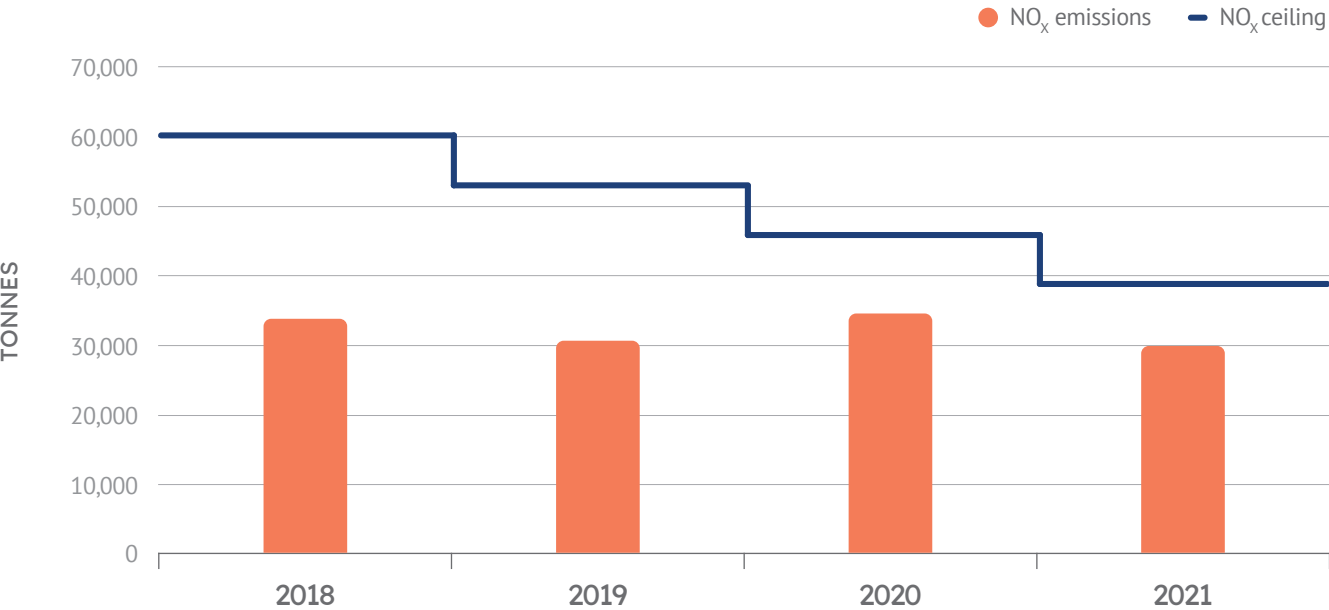


Figure 17: Nitrogen oxides emissions from Serbia's NERP coal plants, compared to the allowed emissions ceilings, 2018 to 2021

Serbia (2021)

SO ₂ ceiling	SO ₂ emissions	Dust ceiling	Dust emissions	NO _x ceiling	NO _x emissions
54,575.33	249,859	6,390.32	4,798	41,196	31,703.49

Ongoing investments

Last winter, Serbia witnessed a serious electricity crisis, with multiple failures at its coal power plants and days-long power blackouts, which transformed the country overnight from net electricity exporter to net importer. Nikola Tesla unit B1, which underwent serious renovation last year, increasing its capacity by 20 MW to 670 MW, suffered from faulty equipment, according to the Serbian Minister of Energy.⁷⁸ Both the B1 and B2 units suffered outages in December 2021 alone.

Between December 2021 and April 2022, Serbia needed to import 2.23 TWh, which reportedly cost over EUR 530 million.⁷⁹ This pressure on the state-owned energy company Elektroprivreda Srbije's (EPS) budget is likely to have a negative impact on investments in pollution control. No new announcements of pollution abatement projects have been made since last year's edition of *Comply or Close*; instead, some of those previously announced, Nikola Tesla A1, A2 and B2, are being postponed and reconsidered (see below).⁸⁰

The desulphurisation installation at Kostolac B1 and B2 remains Serbia's only one, and in 2021, it finally started to show results four years after the works had been declared finished. However, the results were still highly unsatisfactory and the plant's emissions were still well above its ceiling. In addition, the desulphurisation project's permitting saga continues, as at the end of 2021 the installation still had not been granted an operating permit.⁸¹ The reasons for this are not entirely clear.

The mystery surrounding the operating permit follows a bizarre environmental permitting procedure, described in more detail in our previous reports, in which work started before the EIA procedure was completed, and was repeated in 2019 and 2020 after works had allegedly finished.

The works on the Nikola Tesla A3-A6 desulphurisation installation appear to be the only ones moving ahead and are expected to show results in May 2023. This project, even though it had secured financing as early as 2011, moved at a slower pace than the desulphurisation at Kostolac B1 and B2, and the beginning of works was only announced in 2019.⁸² In breach of the EIA Directive, this announcement came more than a month before the EIA decision was issued⁸³ by the Ministry of the Environment. This project is financed by a loan from the Japan International Cooperation Agency (JICA),⁸⁴ and the contractor is Mitsubishi Hitachi Power Systems. According to the financing agency, the rehabilitation should be finalised by 2022. This explains the adjustment in the most recent version of the NERP: the deadline for completion was moved from 2020 to 2022.

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 2020,⁸⁵ and should be finalised by 2024. The contractor selected for the work is also Mitsubishi Power,⁸⁶ and the cost is EUR 210 million. The source of financing for the project is not clear. Even though one would expect this to be covered by a loan from the Japan International Cooperation Agency, as in the case of Nikola Tesla A or Ugljevik, the Agency's annual report for 2020 makes no such mention.⁸⁷ However, documents leaked to the media show delays in the pollution control plans at Nikola Tesla B2.⁸⁸ Works on the second phase of reconstruction of B2 were supposed to start in 2022, but EPS reportedly cancelled procurements worth an overall EUR 59 million, prompting suspicion that it cannot afford the project.⁸⁹

⁷⁸ Igor Todorović, 'New troubles for Serbia's EPS: coal plant TENT B is offline amid breakdown, fire', *Balkan Green Energy News*, 28 December 2021.

⁷⁹ Vladimir Spasić, 'EPS halts construction of its first solar power plant', *Balkan Green Energy News*, 13 May 2022.

⁸⁰ Igor Todorović, 'Serbia's EPS delaying, reconsidering reconstruction of coal plant units', *Balkan Green Energy News*, 27 April 2022.

⁸¹ eKapija, 'REI: EPS pune četiri godine nije pribavio upotrebnu dozvolu za Kostolac B, kako onda može da gradi novu termoelekttranu?'

⁸² Svetlana Jovanović, 'Construction launched on flue-gas desulfurization systems at coal-fired power plant TENTA', *Balkan Green Energy News*, 14 February 2019.

⁸³ Ministry for Environmental Protection: *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*, 29 March 2019.

⁸⁴ Japan International Cooperation Agency, *Flue Gas Desulphurization Construction Project for Thermal Power Plant Nikola Tesla*, last accessed 29 May 2020.

⁸⁵ Vladimir Spasić, 'SO₂ emissions from Nikola Tesla B coal plant to be reduced 20 times by 2024', *Balkan Green Energy News*, 2 December 2020.

⁸⁶ Mitsubishi Heavy Industries, *Mitsubishi Power Receives Follow-up Order from Serbia for Two Sets of World's Largest Flue Gas Desulfurization Systems -- For Installation at 1,340 MW Nikola Tesla B Coal-fired Power Plant*, 22 October 2020.

⁸⁷ Japan International Cooperation Agency, *Activities in Serbia*, accessed 2 July 2021.

⁸⁸ Igor Todorović, 'Serbia's EPS delaying, reconsidering reconstruction of coal plant units', *Balkan Green Energy News*, 27 April 2022, accessed 23 May 2022.

⁸⁹ *Ibid.*

In EPS's earlier plans, the 50-year-old units A1 and A2 of Nikola Tesla power plant were due to be shut down. However, in 2020, it was announced that the two units will undergo major reconstruction, including a de-SO_x installation, and have their lifetime prolonged by no less than 15 years.⁹⁰ The application for approval of the Environmental Impact Assessment for this project was plagued with legal inconsistencies and contested⁹¹ by environmental NGOs in Serbia, and the approval was never granted. In April 2022, after being faced with the collapse of much younger units at Nikola Tesla B during the winter, the state-owned utility is reconsidering the usefulness of the reconstruction decision, announcing that only 'standard overhauls are currently planned for A1 and A2'.⁹²

⁹⁰ Igor Todorović, 'Public consultation starts on study on TENT thermal power unit in Serbia', *Balkan Green Energy News*, 29 May 2020, accessed 25 May 2022.

⁹¹ Igor Todorović, 'Major flaws in EPS environmental study for TENT A thermal power plant overhaul', *Balkan Green Energy News*, 25 June 2020.

⁹² Igor Todorović, 'Serbia's EPS delaying, reconsidering reconstruction of coal plant units'.

⁹³ Nina Domazet, 'EPS namjerava produžiti život TE Kostolac A', *energetika-net*, 19 October 2020.

⁹⁴ Vladimir Spasić, 'EPS plans to extend lifespan of TPP Kostolac A until 2038', *Balkan Green Energy News*, 15 October 2020.

For Kostolac A – another plant which was considered for closure a few years ago – EPS launched a bid for a feasibility study for a desulphurisation installation⁹³ in October 2020. The intention of the operator is also to expand the power plant's lifetime by an additional 15 years.⁹⁴ This seems highly unrealistic, considering that Kostolac A1 is among the oldest units in the region – 54 years old – and A2 has also operated for over 40 years. The Programme for the Implementation of the Energy Strategy of Serbia covering 2017 to 2023 states that:

the preparation of investment and technical documentation for [the] status of location TE Kostolac A is on-going. Preliminary analysis shows that thermal block A1 should be withdrawn from operation, and block A2 should be reconstructed with the application of measures to protect the environment, with the necessary investment of 187 million €.

There is no public information regarding the source of funding for this project, and it is highly questionable whether A2 should be considered for rehabilitation.

*Kostolac B power plant, Serbia
Photo credit: CEE Bankwatch Network*



Conclusions and recommendations

Air pollution from coal power plants in the Western Balkans continues to be massive and deadly. As last year's edition of *Comply or Close* showed, 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.

Yet it shouldn't be like this. Back in 2005, the Western Balkans and other Energy Community Treaty signatories committed to apply the Large Combustion Plants Directive by 1 January 2018.

As part of this, four Western Balkan countries – Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia – drew up National Emission Reduction Plans (NERPs) covering the period from 2018 to 2027.

Instead of each large combustion plant complying with the emission limit values from the Large Combustion Plants Directive starting on 1 January 2018, these plans allow governments to calculate national emission ceilings for sulphur dioxide, nitrogen oxides and dust, and to gradually decrease the plants' total emissions over the period until 2027. At this point, all plants 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.

In 2021, all of these countries continued to massively breach their emissions ceilings for sulphur dioxide. SO₂ emissions from the coal power plants included in the NERPs were, in total, more than five times as high as the sum of the countries' emission ceilings.⁹⁵

Dust emissions from the coal plants included in the NERPs were even higher than in previous years, totalling almost 1.8 times as high as the sum of the allowed ceilings.

In March 2021, the Energy Community Secretariat opened dispute settlement cases against Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia for failure to adhere to their NERP ceilings in 2018 and 2019.⁹⁶

Only total nitrogen oxide emissions were still below the combined ceilings for 2021 on the regional level. However, Bosnia and Herzegovina and Kosovo breached their national ceilings. By 2021, emissions had reached almost 0.9 times the combined ceilings for NO_x, and since the annual ceilings are tightening every year, there is no room for complacency here, either.

The Energy Community Secretariat also opened a dispute settlement case against Montenegro in April 2021,⁹⁷ for breaching the Large Combustion Plants Directive by operating beyond the 20,000 hours allowed under the opt-out regime after 1 January 2018. By the end of 2020, the plant had already operated for 21,003 hours since 1 January 2018,⁹⁸ and in 2021, the plant operated for 6,450 more hours.⁹⁹

In 2021, Serbia's NERP plants were the highest SO₂ emitters, with 249,859 tonnes, followed by Bosnia and Herzegovina with 184,092 tonnes. Both countries somewhat reduced their emissions in 2021 compared to 2020.

In absolute terms, Ugljevik in Bosnia and Herzegovina was once again the highest-emitting unit for SO₂ in the region in 2021, with 86,774 tonnes. This was similar to 2019, showing that the desulphurisation equipment clearly did not work during 2021, two years after testing supposedly began.

⁹⁵ In some cases, these ceilings also include gas or oil plants, so the exceedances by the coal plants are particularly high.

⁹⁶ Energy Community Secretariat, [Secretariat initiates dispute settlement procedures against four Contracting Parties in relation to NERPs](#), 16 March 2021.

⁹⁷ Energy Community Secretariat, [Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts 'opt-out'](#), 20 April 2021.

⁹⁸ Operating hours from Montenegro reports to the European Environment Agency, [EIONET Central Data Repository](#), for 2018, 2019 and 2020.

⁹⁹ European Environment Agency, [EIONET Central Data Repository](#).

Kostolac A2 in Serbia was, for the first time, the worst offender in terms of breaching its individual sulphur dioxide ceiling in 2021, emitting 13 times as much as allowed. It was followed by Tuzla 6 in BiH, with 11.6 times as much as allowed, and Ugljevik and Kakanj 7, with around ten times as much as allowed.

Kostolac B in Serbia finally started to decrease its sulphur dioxide emissions in 2021. Its desulphurisation unit was inaugurated in 2017, but only started test operations in October 2020.¹⁰⁰ Yet as of early May 2022, it still does not yet have an operating permit, and it is not clear why. Kostolac B emitted 26,015 tonnes of SO₂, which is a significant reduction compared to 95,097 tonnes the previous year, but still represents 1.6 times as much as the plant is allowed to emit under the NERP.

The absolute highest dust emitter in 2021 was Gacko in Bosnia and Herzegovina, whose emissions rose massively from an already high 1,656 tonnes in 2020 to an astonishing 4,960 tonnes in 2021. This meant that it emitted no fewer than 16.3 times as much dust as allowed in 2021.

Gacko also had the highest nitrogen oxides exceedance in 2021, emitting more than twice as much as allowed – 4,359 tonnes. Nikola Tesla A4-A6 and Nikola Tesla B1-B2 in Serbia emitted much more in absolute terms – more than 8,000 tonnes each – but did not exceed their allotted ceilings.

The trend of flagrant breaches looks set to continue and intensify, as during the winter months of 2021 and 2022, several Western Balkan countries suffered from electricity crises 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.

These developments have led to rollback in terms of coal phase-out and pollution control, as governments scramble to secure electricity in whatever way possible.

North Macedonia, while remaining committed to increasing renewables investments, has suggested it may delay its coal phase-out from 2027 to 2030 and plans to invest in two new coal mines.¹⁰¹

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.

Such difficulties in day-to-day power sector operations should in theory show the urgency of a sustainable energy transition. However, in practice they mainly suck resources and attention and distract decision makers and utilities even further from public health and the environment.

Recommendations

More than four years after the Large Combustion Plants Directive entered into force in the Energy Community, the need for Western Balkan governments and utilities 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.

First, commitments already made need to be honoured. Plants operating under the opt-out regime must limit their operation to 20,000 hours and then close promptly,¹⁰² and North Macedonia needs to stick to its 2027 coal phase-out date and redouble efforts to be ready for it. Delaying it only means more unnecessarily deaths from air pollution, as fitting additional pollution control equipment would not be economic. Even 2027 is late for those already suffering from living near existing plants.

But governments and utilities also need to make more realistic plans for the closure of 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. In the meantime, their operating hours need to be reduced, to keep pollution to a minimum.

¹⁰⁰ Beta, 'Ministarstvo: Emisije sumpordioksida u Kostolcu B u okviru propisanih vrednosti'.

¹⁰¹ Mihajlo Vujasin, 'Environmentalists oppose lignite mine projects in North Macedonia'.

¹⁰² 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.

This of course requires consideration of security of supply, but demand can also be reduced by other means such as reducing distribution losses, other energy efficiency measures, and use of efficient heat pumps for heating instead of electrical resistance heaters. Closing plants early will also mean that plans for a just transition of the coal mining regions need to be speeded up, and need to be planned in a participatory manner.¹⁰³

For those plants which cannot be closed within the next few years, it is most urgent to ensure that the Ugljevik and Kostolac B desulphurisation units function properly. Investments in desulphurisation and dust control equipment also need to be speeded up in a few selected cases where they will pay off, and in the meantime, operating hours need to be reduced to decrease the pollution burden.

In order to achieve efficiency of investments and maximise their benefits for human health, any new pollution control equipment should ensure that plants reach the latest EU standards,¹⁰⁴ rather than just the obligatory minimum ones. It is also crucial to ensure that the equipment is of sufficient quality and that it is used in reality. Publishing real-time emissions data from continuous monitoring would help to build public trust that this is really the case.

The Energy Community needs to have stronger enforcement tools at its disposal, for the benefit of human health and the environment. The Treaty's dispute settlement mechanism needs to be strengthened to include dissuasive penalties for breaches, and mechanisms for CO₂ and potentially also pollution pricing need to be introduced in the Energy Community countries to level the playing field in the European electricity market.

To all the Western Balkan governments

- Reduce operating hours for non-compliant plants in order to comply with emissions ceilings until pollution control equipment is functioning or the plants are closed.
- Use the National Energy and Climate Plan development process to make 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 the reduction of grid losses, 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.
- For those plants which will remain in operation for several more years, in order to achieve efficiency of investments and maximise their benefits for human health, new pollution control equipment should ensure that plants reach LCP BREF 2017 standards, rather than just the obligatory LCPD and IED Annex V values.

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 increases at Gacko and take action to reduce emissions, whether by reducing operating hours or undertaking repairs.

¹⁰³ For more information, see also CEE Bankwatch Network, [Eight steps for a just transition in the Western Balkans](#).

¹⁰⁴ [Commission Implementing Decision \(EU\) 2017/1442 of 31 July 2017 establishing best available techniques \(BAT\) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants](#), 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\)](#).

- 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 date for Kosova B. Based on this, assess the feasibility of further pollution control investments.
- Ensure the speedy completion of the project to improve continuous monitoring at Kosova B.

To the Montenegro authorities

- 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.

To the North Macedonia authorities

- Formalise the closure of REK Oslomej.
- Stick to 2027 as the planned coal phase-out date and do not open new coal mines.
- Issue an IPPC permit for the Bitola plant. 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 more than three years, why the installation does not yet have an operating permit, why emissions were still higher than the ceiling in 2021, and what is being done to fix this. Publish emissions data in real time online.
- Put construction of Kostolac unit B3 on hold at least until it is clarified whether there are issues with CMEC's pollution control technology.¹⁰⁵

¹⁰⁵ We recommend dropping the investment completely, for climate, health and economic reasons; however, the recommendation listed is derived from the contents of this report.

- Ensure the timely and effective completion of the ongoing projects to fit desulphurisation equipment at Nikola Tesla A3-6.
- 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

- 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.

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 planned carbon border adjustment mechanism includes the electricity sector and helps to prevent power from non-compliant plants being traded with the EU. This may also involve including a pollution border tax element. EU budget funds of an equivalent amount to the revenues should be used to help willing countries to advance their energy transition.
- 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.

Annex 1

Materials and methods

The emissions of Western Balkans coal power plants were collected from the [EIONET Central Data Repository](#). 2021 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 - 2020, 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 2022

How Western Balkan coal plants breach air pollution laws and what governments must do about it

