

COMPLY OR CLOSE

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

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Glossary

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

De-SO_x – Equipment for the reduction of sulphur oxide emissions.

EC – European Commission

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.

EnCom – Energy Community

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 oxidize 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, under Directive 2010/75/EU of the European Parliament and of the Council, for large combustion plants (notified under document C(2017) 5225).

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 – Suspended particulate matter or dust particles.

SO₂ – Sulphur Dioxide

Executive summary

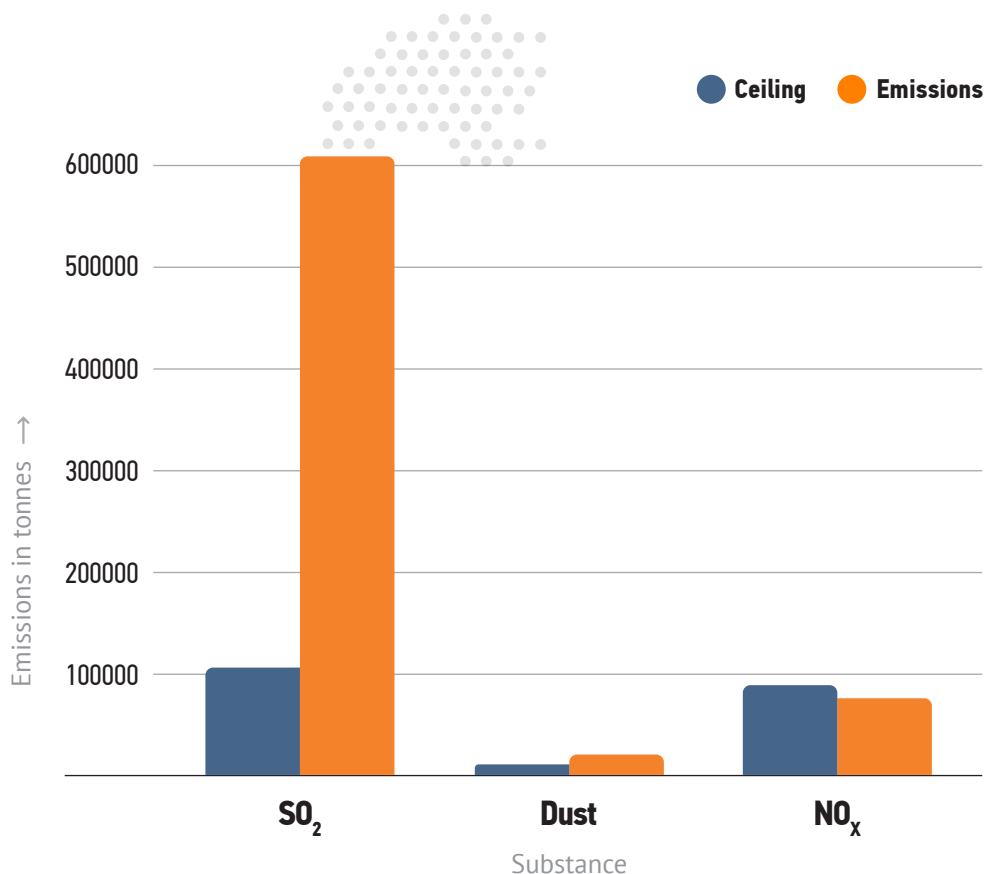
In December 2019, Bankwatch published its Comply or Close report, which found that none of the Western Balkan countries with coal power plants¹ had complied² with the pollution limits for 2018 set under the Energy Community Treaty.³

Sulphur dioxide emissions from coal plants that were included in the National Emissions Reduction Plans (NERPs)⁴ of Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia⁵ totalled no fewer than six times as much as the 2018 ceilings set in the plans, while dust emissions amounted to 1.6 times as much as the ceilings.

This new report updates the findings with 2019 data reported to the European Environment Agency,⁶ and regrettably finds no overall improvement.

In fact, between 2018 and 2019, sulphur dioxide (SO₂) emissions from coal plants covered by NERPs actually increased from 603,988 to 617,281 tonnes rather than decreasing. This still represents around six times as much as the combined SO₂ ceilings for the four countries.

Figure 1 and Table 1: 2019 emissions ceilings breaches - Regional totals



¹ Bosnia and Herzegovina, Kosovo*, Montenegro, North Macedonia and Serbia. Albania has no functional large combustion plants. *According to the UN, Kosovo is "under the United Nations Interim Administration Mission in Kosovo (UNMIK) established pursuant to Security Council Resolution 1244." In this publication it is referred to as "Kosovo".

² Montenegro is the nearest to complying, as it is using a limited lifetime derogation called the "opt-out" for its Pljevlja plant. This means the plant can continue to operate until 2023 without pollution control investments as long as it does not operate for more than a total of 20,000 hours. As long as Montenegro closes or rehabilitates the plant within this period, it will not be in breach of the Directive.

³ The Energy Community Treaty entered into force in 2006 and is designed to extend the EU energy market to the EU's southern and eastern neighbours. The Large Combustion Plants Directive (LCPD), was included in the Energy Community Treaty back in 2005 when the Treaty was originally signed. The LCPD has already been superseded in the EU, where it was highly successful in reducing air pollution from the power sector. It is therefore only a first step to meeting current EU industrial emissions standards, but would still represent a strong step forward for the Western Balkans.

⁴ National Emission Reduction Plans are a mechanism which allows plants to be gradually brought into compliance as a group, with the better-performing plants balancing out the poorer-performing ones. National ceilings have been calculated for SO₂, NO_x and dust for 2018, 2023, 2026 and 2027, and the sum of the plants' emissions needs to be lower than this overall ceiling. By the end of the process, all the plants need to individually comply with the emission limit values for existing plants from the EU Industrial Emissions Directive.

⁵ Montenegro could not have a NERP because it only has one large combustion plant.

SO ₂ ceiling	103,682.33
SO ₂ emissions	617,281.34
Dust ceiling	11,199.32
Dust emissions	17,556.75
No _x ceiling	97,225.94
No _x emissions	72,136.31



Ash pond serving the Tuzla coal power plant

Tuzla, Bosnia and Herzegovina
Photo credit: Denis Žiško

Dust emissions decreased only slightly, from 18,144 tonnes in 2018 to 17,556.75 tonnes in 2019, still representing almost 1.6 times as much as the total dust ceilings for the countries. Kosovo B remained the highest emitter, with 4,559 tonnes, or 5.4 times as much as its ceiling. Serbia was the only country that complied with its national dust ceiling.

Only for nitrous oxides did the overall regional emissions from coal plants covered by NERPs amount to less than the 2019 ceilings set in the NERPs. Serbia and North Macedonia remained within their NO_x ceilings, while Kosovo and Bosnia and Herzegovina breached theirs.

The 16 Western Balkan coal plants have been estimated to be responsible for around 3,900 premature deaths annually, spread between the region and nearby EU countries.⁷ Taking action to reduce pollution is therefore imperative and long overdue.

In 2019, Serbia's NERP plants were still the biggest SO₂ emitters, with 305,306.90 tonnes, followed by Bosnia and Herzegovina with 189,706.44 tonnes. These represent slight decreases since 2018, but Serbia's NERP plants are still emitting almost three times as much SO₂ as is allowed for the four countries together.

An alarming development in 2019 was the doubling of SO₂ emissions from North Macedonia's coal power plants in just one year. Total emissions in 2019 were 108,032 tonnes compared to 53,855 tonnes in 2018. The reasons for this development are not entirely clear.

SO₂ emissions from the two stacks of North Macedonia's largest coal plant, Bitola, B1+B2 and B3, amounted to 67,300 and 38,131 tonnes respectively. B1+B2's emissions are more than 10 times as high as its individual ceiling and B3's emissions are an astonishing 13 times as high as its ceiling. This makes Bitola B3 the region's worst offender in terms of breaching its individual ceiling.

In absolute terms, Ugljevik in Bosnia and Herzegovina was the highest-emitting unit for SO₂ in the region in 2019, with 88,302 tonnes, or 9.7 times as much as its ceiling. A desulphurisation unit started test operations in December 2019, but in early 2020, technical problems were reported. It therefore remains to be seen when and whether the benefits of this investment will be felt.

This raises uncomfortable echoes of last year's highest absolute SO₂ emitter, Kostolac B in Serbia, where De-SO_x equipment installed by the China Machinery Engineering Corporation (CMEC) that was inaugurated in 2017 is still not operating regularly. The reasons for this remain unclear.

⁶ Except for Kosovo, which only reported 2017 data in 2019, and has only reported 2018 data so far in 2020. Therefore this report does represent an update for Kosovo as well, but using 2018 data.

⁷ HEAL, CAN Europe, Sandbag, CEE Bankwatch Network and Europe Beyond Coal: [*Chronic coal pollution - EU action on the Western Balkans will improve health and economies across Europe*](#), February 2019.

Figure 2 and Table 2: 2019 emissions ceilings breaches - **Bosnia and Herzegovina**

SO₂ ceiling	22,195
SO₂ emissions	189,706.44
Dust ceiling	1,689
Dust emissions	2,707.43
NO_x ceiling	14,030
NO_x emissions	14,254.69

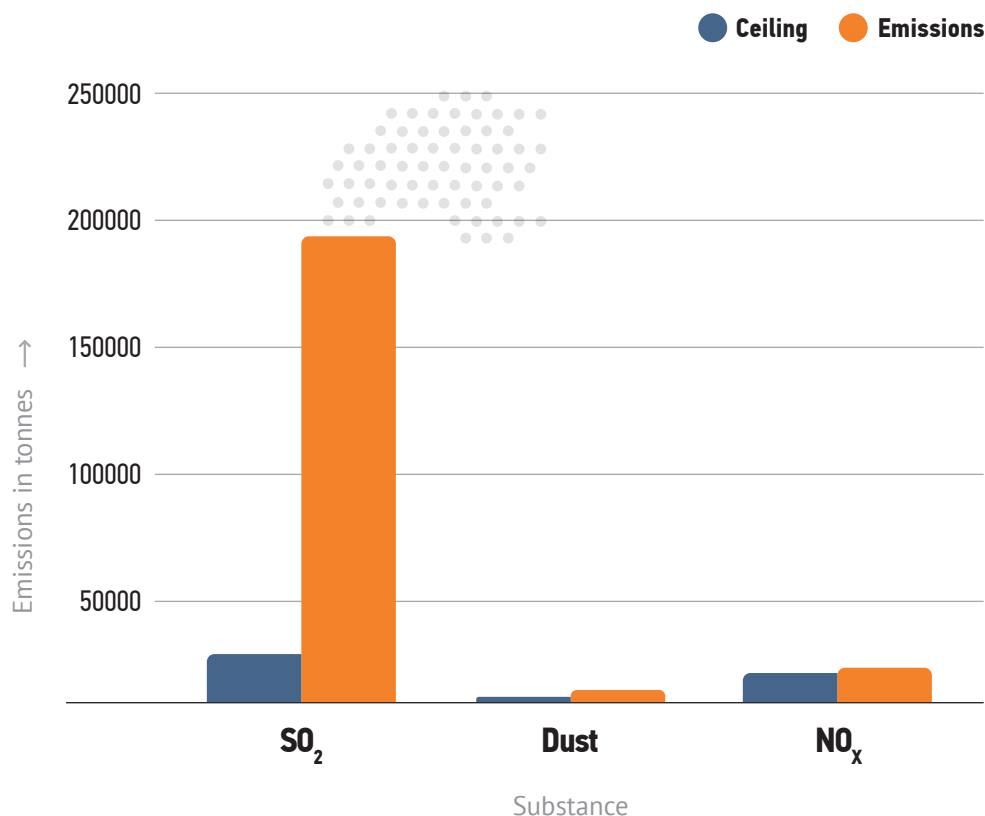


Figure 3 and Table 3: 2019 emissions ceilings breaches - **Kosovo**

SO₂ ceiling	11,057
SO₂ emissions	14,236
Dust ceiling	1,382
Dust emissions	5,042
NO_x ceiling	13,821
NO_x emissions	19,182

* Data from 2018.
The 2019 data has not
been published yet.

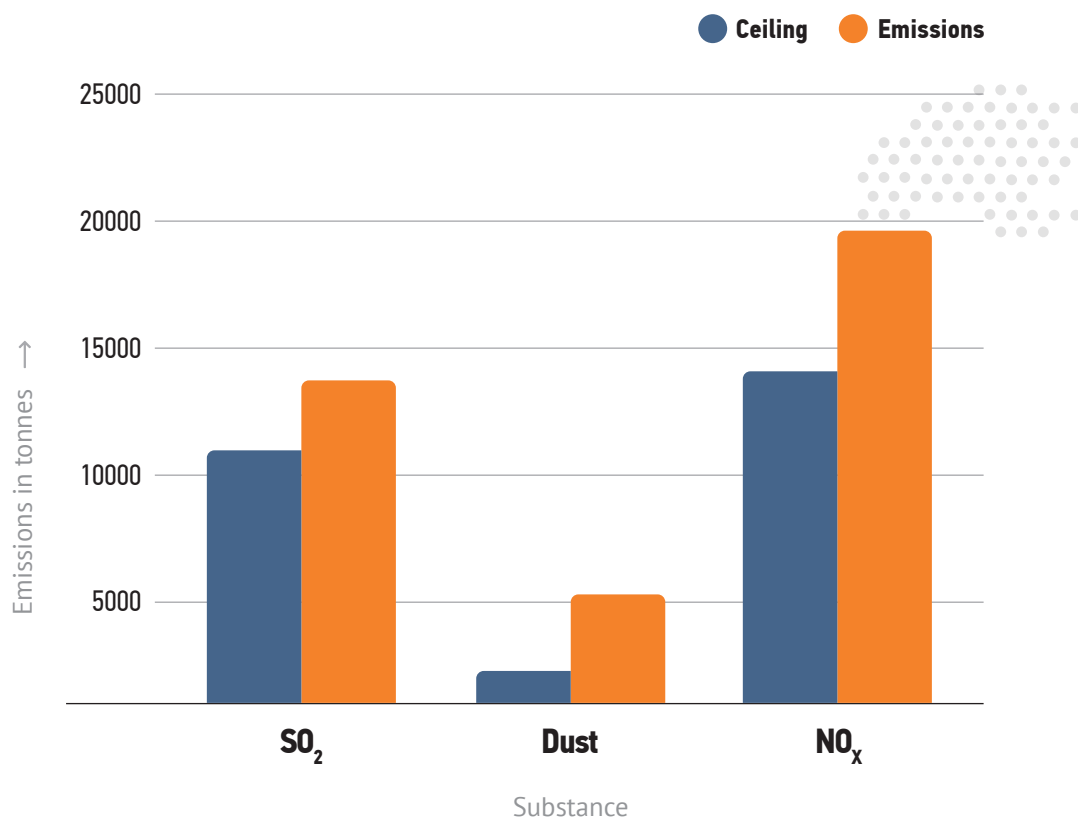


Figure 4 and Table 4: 2019 emissions ceilings breaches - *North Macedonia*

SO₂ ceiling	15,855
SO₂ emissions	108,032
Dust ceiling	1,738
Dust emissions	3,777
NO_x ceiling	14,088
NO_x emissions	5,617

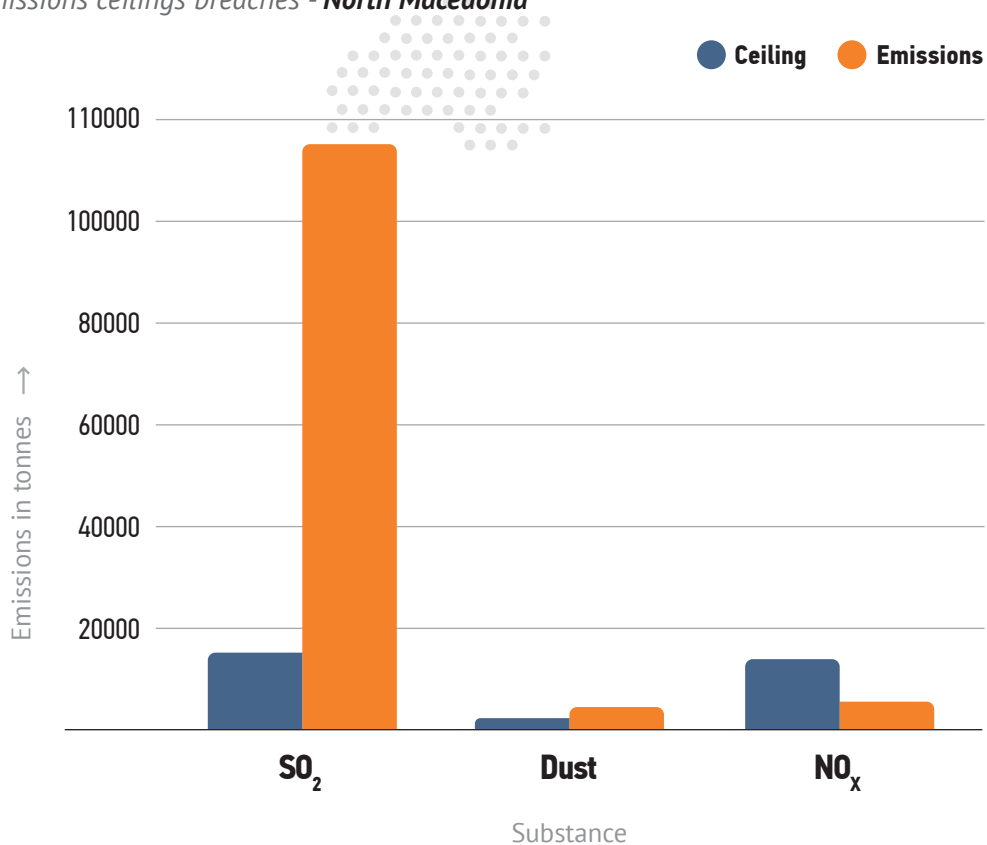
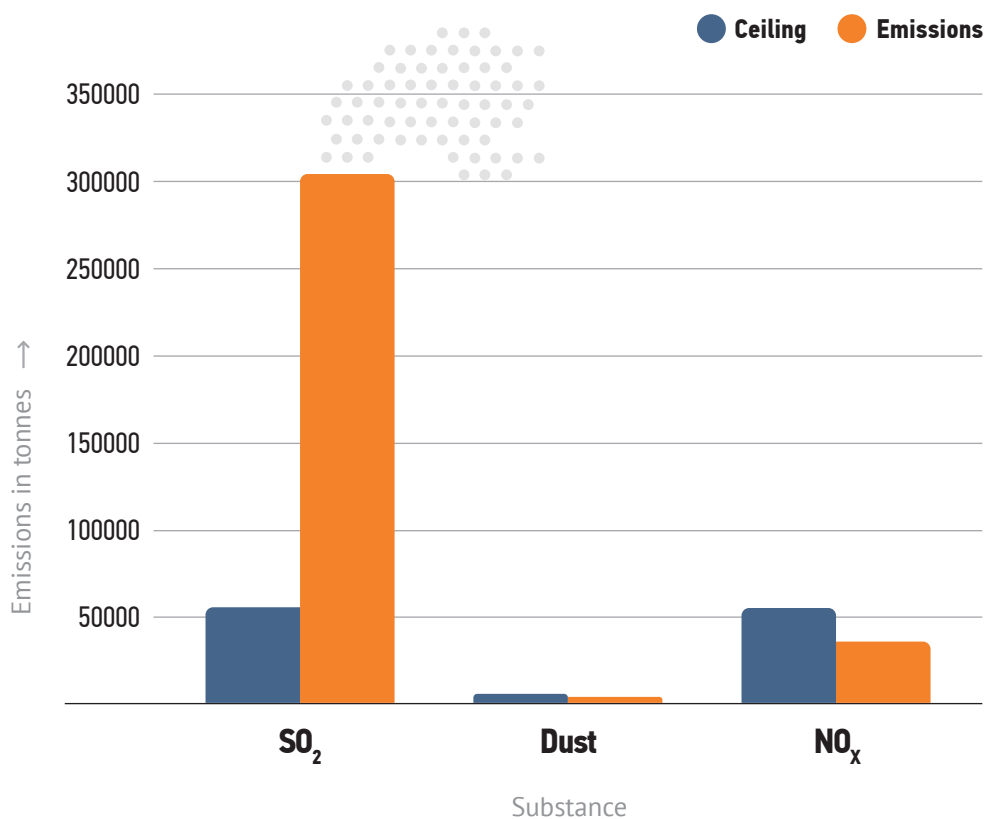


Figure 5 and Table 5: 2019 emissions ceilings breaches - *Serbia*

SO₂ ceiling	54,575.33
SO₂ emissions	305,306.9
Dust ceiling	6,390.32
Dust emissions	6,030.32
NO_x ceiling	55,286.94
NO_x emissions	33,082.62



The enormous breaches and lack of improvement on SO₂ and dust show a worrying neglect of pollution control measures by decision-makers. The requirement to adhere to the Large Combustion Plants Directive from 1 January 2018 has been part of the Energy Community Treaty since it was signed in 2005, so no-one can say they have not had time.

Moreover, the fact that the two largest desulphurisation investments have not yet resulted in significant emissions cuts shows the need to consider closing more coal plants, sooner than planned.

Where it is really necessary to keep plants running, in order to ensure efficiency of investments and maximise their benefits for human health, new pollution control equipment needs to ensure that plants reach the latest EU standards – the so-called LCP BREF⁸ – rather than just the legal minimum ones in the Large Combustion Plants Directive (LCPD).

For the worst-performing plants, project documentation, tendering and financing for such equipment must be finalised by the end of 2020 at the latest. Until the investments are completed, operating hours need to be reduced to meet the emissions ceilings.

Given the experience at Kostolac B and Ugljevik, 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 LCPD breaches in the Western Balkans also highlight the need for the Energy Community to have stronger enforcement tools at its disposal, for the benefit of human health and the environment.

The report therefore also recommends that the European Commission and EU Member States support the strengthening of the Treaty's dispute settlement mechanism. The EU and Energy Community also need to develop mechanisms, such as a tax on CO₂, or a carbon border tax, to ensure that heavy polluters cannot so easily use their lack of investments in pollution control as a market advantage in exporting electricity to the EU.

⁸ [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 \(notified under document C\(2017\) 5225\)](#)



Pljevlja, Montenegro
Photo credit: Nevena Petkovic / Green Home



Old photo

⁹ Directive 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants.

¹⁰ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control). The Directive included a requirement to draw up new technical standards, called the LCP BREF, to minimise pollution and ensure that large combustion plants apply the so-called best available techniques. The LCP BREF was approved in 2017 and entered force immediately for new large combustion plants permitted after its publication in the [Official Journal](#). Existing plants in the EU need to comply by 2021, so EU candidate countries will also need to comply with these requirements in the coming years.

¹¹ Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia. Albania does not have any functional large combustion installations, but has a 98 MW gas/oil fired power plant at Vlora, financed by the World Bank, EBRD and EIB, which has never operated due to technical faults.

¹² Montenegro was neither fully compliant, nor yet non-compliant. Since it only has one large combustion plant, at Pljevlja, it could not draw up a National Emissions Reduction Plan and instead used another mechanism, the limited lifetime derogation, also known as the 'opt-out'. This allows plants to operate without additional investments in pollution abatement until the end of 2023 as long as they do not operate for a total of more than 20,000 hours between 1 January 2018 and 31 December 2023. If they wish to operate for more hours or to operate beyond 2023, they need to make sufficient investments to comply with the emission limit values for new plants, not just existing plants.

¹³ Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia.

¹⁴ A more detailed explanation of the three potential ways of complying with the Directive is given in the previous version of [Comply or Close](#), December 2019.

¹⁵ The limits for the years in between are set according to these. So between 2018 and 2019, the limit values only changed for NO_x. For details see: Energy Community Secretariat: [Policy Guidelines on the Preparation of National Emission Reduction Plans \(NERPs\)](#), 19 December 2014.

¹⁶ In exchange for the longer implementation period, by 2027 the plants need to comply with the slightly stricter Part 1 of Annex V to the Industrial Emissions Directive (Directive 2010/75/EU) rather than just the LCPD emission limit values.

¹⁷ HEAL, CAN Europe, Sandbag, CEE Bankwatch Network and Europe Beyond Coal: [Chronic coal pollution - EU action on the Western Balkans will improve health and economies across Europe](#), February 2019.

Introduction

In December 2019 Bankwatch launched its Comply or Close report, using official data to detail the massive non-compliance of Western Balkan coal plants with the Large Combustion Plants Directive (LCPD).⁹ This piece of legislation is now obsolete in the EU, having been superseded by the Industrial Emissions Directive,¹⁰ but compliance with its limit values for pollution to air only became obligatory for existing power plants in the Energy Community countries from 1 January 2018.

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 is crucial to level the playing field and prevent emissions leakage.

Despite the fact that the Western Balkan countries¹¹ had 12 years to invest in compliance with the LCPD, our research found that **by 2018, not one of the countries was fully compliant with the Directive.**¹²

In fact, in 2018, the total sulphur dioxide (SO₂) emissions from the four Western Balkan countries¹³ which drew up National Emissions Reduction Plans (NERPs) were more than six times as high as the sum of the countries' ceilings. Dust emissions were 1.6 times as high as the countries' combined ceilings. Only overall nitrogen oxide (NO_x) emissions were below the combined ceilings.

National Emissions Reduction Plans (NERPs) allow countries to sum up emissions of SO₂, 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.¹⁴ Energy Community Contracting Parties are allowed to use NERPs until 31 December 2027.

The plans establish periodical annual ceilings (2018, 2023, 2026 and 2027)¹⁵ which all plants' emissions combined must not go above, irrespective of their individual emissions.¹⁶ 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, so not even complying with NERP ceilings is extremely problematic.

This is not just a matter of compliance, but of life and death. The 16 Western Balkan coal plants have been estimated to be responsible for around 3,900 premature deaths annually, spread between the region and nearby EU countries.¹⁷ Taking action to reduce pollution is therefore imperative and long overdue.

This update of the report looks at the official reported data for 2019 to see how the situation has changed.

It provides a regional overview of the results, together with country profiles for Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia.

Regional overview of results

The most visible regional trend is that in 2019 – as in 2018 – none of the four Western Balkan countries that made National Emissions Reduction Plans¹⁸ complied with their emissions ceilings for sulphur dioxide (SO₂). Subsequently, the region as a whole is not even close to staying below the sum of the national ceilings for this pollutant.

Although officially there is no such thing as a regional overall ceiling, an analysis of the region's combined emissions shows some interesting – but alarming – results. The emission values in this chapter are only from the coal units included in the NERPs, so the total emissions from all units in Western Balkan countries¹⁹ is even higher.

In fact, the true extent of emissions remains unknown. The Large Combustion Plants Directive adapted for the Energy Community also obliges the Contracting Parties to install and operate continuous emissions monitoring equipment on all their LCPs,²⁰ but almost half of the coal-fired power plants in the Western Balkans do not have continuous monitoring in place.

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.

But on the basis of official data reported to the European Environment Agency, between 2018 and 2019, **SO₂ emissions from coal plants covered by NERPs actually increased, from 603,988 to 617,281 tonnes**, rather than decreased. This still represents around **six times as much as the combined SO₂ ceilings for the four countries**.

Dust emissions decreased only slightly, from 18,144 tonnes in 2018 to 17,556.75 tonnes in 2019, still representing **almost 1.6 times as much as the total dust ceilings for the countries**. Kosova B remained the highest emitter, with 4,559 tonnes, or 5.4 times as much as its ceiling. Serbia is the only country that complied with its national dust ceiling.

Only for nitrous oxides did the overall regional emissions from coal plants covered by NERPs amount to less than the 2019 ceilings set in the NERPs. Serbia and North Macedonia remained within their NO_x ceilings, while Kosovo and Bosnia and Herzegovina breached theirs.

In 2019, Serbia's NERP plants were still the biggest SO₂ emitters, with 305,306.90 tonnes, followed by Bosnia and Herzegovina with 189,706.44 tonnes. These represent slight decreases since 2018, but Serbia's NERP plants are still emitting almost three times as much SO₂ as is allowed for the four countries together.

An alarming development in 2019 was the doubling of SO₂ emissions from North Macedonia's coal power plants in just one year. Total emissions in 2019 were 108,032 tonnes compared to 53,855 tonnes in 2018. The reasons for this development are not entirely clear.

¹⁸ Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia. Montenegro could not because it only has one large combustion plant, while Albania has no functional plants.

¹⁹ Meaning those under a limited lifetime derogation (the so-called opt-out), the Stanari plant which is newer and had to comply with the LCPD from the outset, and plants using other fuels than coal.

²⁰ Article 12 of the [Large Combustion Plants Directive](#).



*Prishtina, Kosovo
Photo credit: Arben Llapashtica*

Emissions from the two stacks of North Macedonia's largest coal plant, Bitola, B1+B2 and B3, were more than 10 times and 13 times as high as the stacks' individual ceilings, respectively, making **Bitola B3 the region's worst offender in terms of breaching its individual ceiling.**

In absolute terms, Ugljevik in Bosnia and Herzegovina was the highest-emitting unit for SO₂ in the region in 2019, with 88,302 tonnes, or 9.7 times as much as its ceiling. A desulphurisation unit started test operations in December 2019, but in early 2020, technical problems were reported. It therefore remains to be seen when and whether the benefits of this investment will be felt.

This raises uncomfortable echoes of last year's highest absolute SO₂ emitter, **Kostolac B** in Serbia, where desulphurisation equipment installed by the China Machinery Engineering Corporation (CMEC) that was inaugurated in 2017 is still not operating regularly.

The reasons for this remain unclear (see the section on Serbia for more details).

In the following chapters, the country's individual ceilings and contributions will be explained in more depth. But the general conclusion is that on the regional level, there was no overall improvement between 2018 and 2019, and that action urgently needs to be stepped up, whether this means closing the plants, investing in pollution control, or reducing their operating hours.

Country profiles

Bosnia and Herzegovina

State of play with the NERP

Bosnia and Herzegovina (BIH) was the first country in the region to publish its draft National Emissions Reduction Plan (NERP).²¹ Its Council of Ministers approved the Plan on 30 December 2015²² and the Energy Community Secretariat approved it in October 2016.²³

BIH also nominated several units for limited lifetime derogations (so-called 'opt-outs'), allowing them to run for a total of 20,000 hours between 1 January 2018 and 31 December 2023, after which they either need to close or comply with the emission limit values for new plants under the Industrial Emissions Directive. The three units on the final opt-out list are Tuzla 3, Tuzla 4, and Kakanj 5.^{24,25}

Bosnia and Herzegovina 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 from the outset.

²¹ USAID: *Draft National Emission Reduction Plan for Bosnia and Herzegovina*, November 2015.

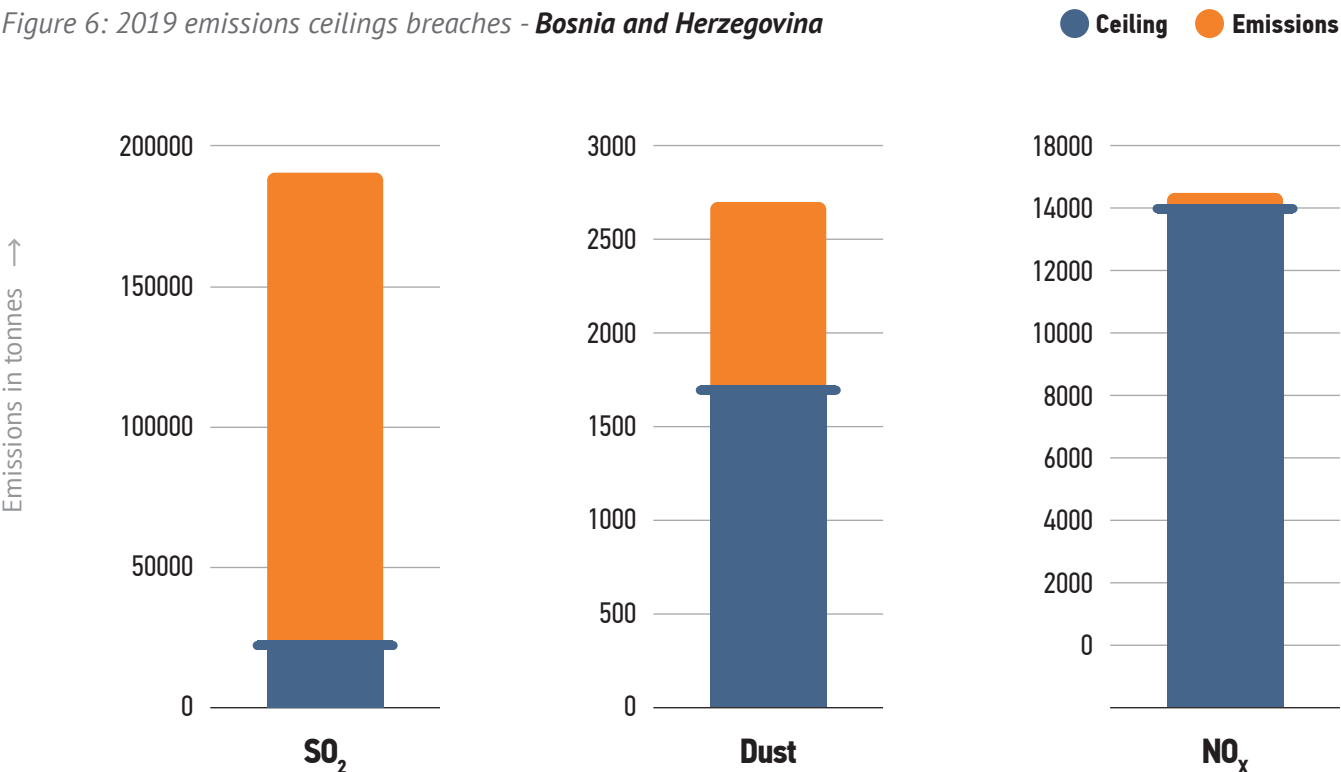
²² Bosnia and Herzegovina *Council of Ministers: Conclusions from the 37th Session of the Council of Ministers*, 30.12.2015.

²³ *Energy Community website*, accessed 29 September 2019

²⁴ *Energy Community: Report on the final list of opted-out plants*

²⁵ Tuzla 4 and Kakanj 5 also appear in the NERP. This is because, in the draft NERP, it was allowed to include units that had also been nominated for opt-outs, because opt-outs had to be approved by the Ministerial Council, so there was a theoretical possibility that they would not be approved. However, now that the final opt-out plants have been approved, the NERP ceilings are now the sum of the plant-level ceilings from the original NERP, minus Tuzla 4 and Kakanj 5.

Figure 6: 2019 emissions ceilings breaches - Bosnia and Herzegovina



Compliance with the 2019 NERP ceilings

Bosnia and Herzegovina's NERP coal plants exceeded the 2019 ceilings for SO₂ and dust.

The worst problem was with sulphur dioxide (SO₂), which was 8.5 times as high as the BIH ceiling.²⁶ The highest absolute emissions came from Ugljevik 1 (88,301.77 tonnes, more than five thousand tonnes higher than in 2018), while Kakanj 7 had the highest exceedance – 12.66 times as high as its 2019 ceiling.

Dust emissions from the NERP plants amounted to 1.6 times the BIH ceiling. Gacko I is the worst offender in both absolute terms (1,574.22 tonnes – up 50 per cent since 2018) and in terms of ceiling exceedance (5.18 times as much as its ceiling).

²⁶ The original BIH ceiling for SO₂, stated in the NERP included Kakanj 5 and Tuzla 4, which are now under opt-out, so the calculation was based on a ceiling formed by the sum of the other plants.

NO_x emissions from the NERP plants were roughly equal to the BIH ceiling. Kakanj 7 had both the highest exceedance (1.6 times as much as its ceiling) and the highest absolute NO_x emissions (4,052 tonnes).

Tuzla, Bosnia and Herzegovina
Photo credit: Denis Žiško



Ongoing investments

Due to its SO₂ emissions currently being among the highest in Europe,²⁷ the most important investment is the desulphurisation equipment at the Ugljevik power plant. Financed by a loan from the Japan International Cooperation Agency (JICA) signed back in 2009,²⁸ works started only in 2017 and test operation started in December 2019.²⁹ It had therefore been hoped that in 2020, SO₂ emissions would finally be significantly lower.

However in February 2020 it was revealed that there was a technical problem. The plant's dust filters, overhauled three years ago by Czech company Termochem,³⁰ were not working properly, and their proper functioning is a precondition for desulphurisation.³¹ The EUR 85 million desulphurisation investment has been put in jeopardy. Representatives from the Ugljevik power plant told the Capital.ba portal that the replacement parts would be ready by mid-March;³² however, it is not clear whether they were delivered or not.

It remains to be seen how this situation will pan out; however, it is worrying to observe a second desulphurisation investment – after Kostolac B1-B2 in Serbia – suffering from technical problems.

At other plants, investments are going slowly, especially considering that Bosnia and Herzegovina has had since 2005 to prepare for LCPD compliance. Elektroprivreda BiH has made investment decisions on desulphurisation equipment at Kakanj 7 and Tuzla 6 and the environmental impact assessment for the De-SO_x installation at Kakanj 7 was approved in 2019.

It is not clear whether financing has been secured – a response to an information request on this issue stated that the funds will come from EPBiH's own resources and loans, but it did not state which banks would provide these loans.³³

Kosovo

State of play with the NERP

Kosovo's Government decided that all its five coal-fired units (Kosova A3, A4, A5 and Kosova B1 and B2) would be included in the National Emissions Reduction Plan (NERP). No public consultation was held at the domestic level and the document was not publicly available until September 2019. As far as we were able to observe the NERP development process, Kosovo had not submitted a comprehensive and compliant Plan to the Energy Community Secretariat by the deadline, 31 December 2015.

Moreover, Kosovo made an attempt to postpone the start of implementation of the NERP from 2018 to 2022 and at the meeting of the Environmental Task Force of the Energy Community in February 2017, Kosovo's representative reported that the issue was still under discussion at the Government level.

Still, in May 2017, following the Energy Community Secretariat's assessment that Kosovo's NERP violated the Large Combustion Plants Directive and the Policy Guidelines,³⁴ a new version of the Plan was submitted to the Secretariat.

²⁷ HEAL, CAN Europe, Sandbag, CEE Bankwatch Network and Europe Beyond Coal: *Chronic coal pollution - EU action on the Western Balkans will improve health and economies across Europe*, February 2019.

²⁸ JICA: *Commencement of works in Ugljevik TPP in Bosnia and Herzegovina*, 15 May 2017.

²⁹ Iskra Pavlova: *Bosnia's Ugljevik 82 mln euro desulphurisation project nears completion*, SEE News, 2 July 2019.

³⁰ *TermoChem website*, last accessed 29 May 2020.

³¹ Dejan Tovilović: *Zbog nemara ugrožena investicija od 83 miliona evra*, Capital.ba, 27 February 2020.

³² Dejan Tovilović: *„Sistem za odsumporavanje TE Ugljevik nije igračka, neko će odgovarati”*, Capital.ba, 5 March 2020.

³³ Response to information request by the Aarhus Center Sarajevo, dated 18 October 2019.

³⁴ Energy Community Secretariat: *Policy Guidelines on the Preparation of National Emission Reduction Plans (NERPs)*, 19 December 2014.



Another revised NERP was adopted by the Government of Kosovo in May 2018,³⁵ five months after it should have already entered into force and been transposed into national regulations. The NERP was uploaded on the Office of the Prime Minister's website in September 2019,³⁶ but the document still carries a 'draft' watermark.

On 12 July 2019, a Reasoned Request was submitted to the Energy Community Ministerial Council for a decision under Article 91 of the Energy Community Treaty about the case (ECS-6/18), concerning the incomplete transposition and lack of implementation of Directive 2001/80/EC on large combustion plants by Kosovo.³⁷ On 16 March 2020, the Energy Community Ministerial Council took a decision via written procedure on the failure by Kosovo to comply with Article 16 of the Treaty. In Article 2 of the Decision, the ministers urge Kosovo to rectify the identified breaches and ensure compliance with Energy Community law immediately. They invite the Secretariat to initiate a procedure under Article 92 of the Treaty if this does not happen by 1 July 2020.³⁸

³⁵ *Energy Community website*, last accessed 29 May 2020.

³⁶ https://kryeministri-ks.net/wp-content/uploads/2019/09/NERP_Kosovo_19-May_20181.pdf

³⁷ Non compliance refers to Articles 4(1) and 4(3) and Parts A of Annexes III, IV, V, VI and VII of Directive 2001/80/EC (the Large Combustion Plants Directive) which establish emission limit values for existing plants, as well as Article 30(3) and Part 2 of Annex V of Directive 2010/75/EU for new plants.

³⁸ Energy Community: *Case 06/18 Kosovo* Summary of the case*, last accessed 29 May 2020.

³⁹ European Environment Agency: *EIONET Central Data Repository*, last accessed 29 May 2020.

⁴⁰ Daniel Montalvo, European Environment Agency: *Implementation of the LCP Directive Update on reporting of emissions*, uploaded on 15 May 2020.

⁴¹ European Environment Agency: *EIONET Central Data Repository*, last accessed 29 May 2020.

Compliance with the 2019 NERP ceilings

In 2020 Kosovo stands out as the only one of the five relevant Western Balkan countries whose 2019 emissions are not publicly available on the European Environmental Agency website as of mid-May 2020. A document has indeed been submitted, but at the time of writing it was password-protected.³⁹ A possible explanation could be a mistake in the estimate of the 2019 emissions, as a recent presentation⁴⁰ by the European Environment Agency on the current status of LCPD implementation in the Energy Community mentions an inexplicable halving of SO₂ and NO_x emissions. Since the latest available emissions are from 2018,⁴¹ a comparison of 2019 reported emissions with the 2019 emissions ceilings set by the NERP is technically impossible.

However, considering that no emission reduction control equipment was fitted on any of the five units during 2019, we can expect that the 2019 NO_x and dust emissions would be similar to the 2018 ones, the only variable being the operating times of each power plant.

Nevertheless, for SO₂, the situation might be different, as a Kosovar government representative stated at the meeting of the Energy Community Environmental Task Force in April 2019 that SO₂ levels at the plants vary considerably and JICA consultants are trying to better understand the reasons for this. This is already visible when we compare the 2018 emissions with 2017 ones.

Table 6: Unexplained differences between 2019 ceilings in the NERP text and Annex II

Pollutant	SO ₂	Dust	NO _x
NERP 2019 National Ceiling (tonnes)	11,112	3,993	13,890
2019 National Ceiling in Annex 2 (tonnes)	11,057	1,382	13,821

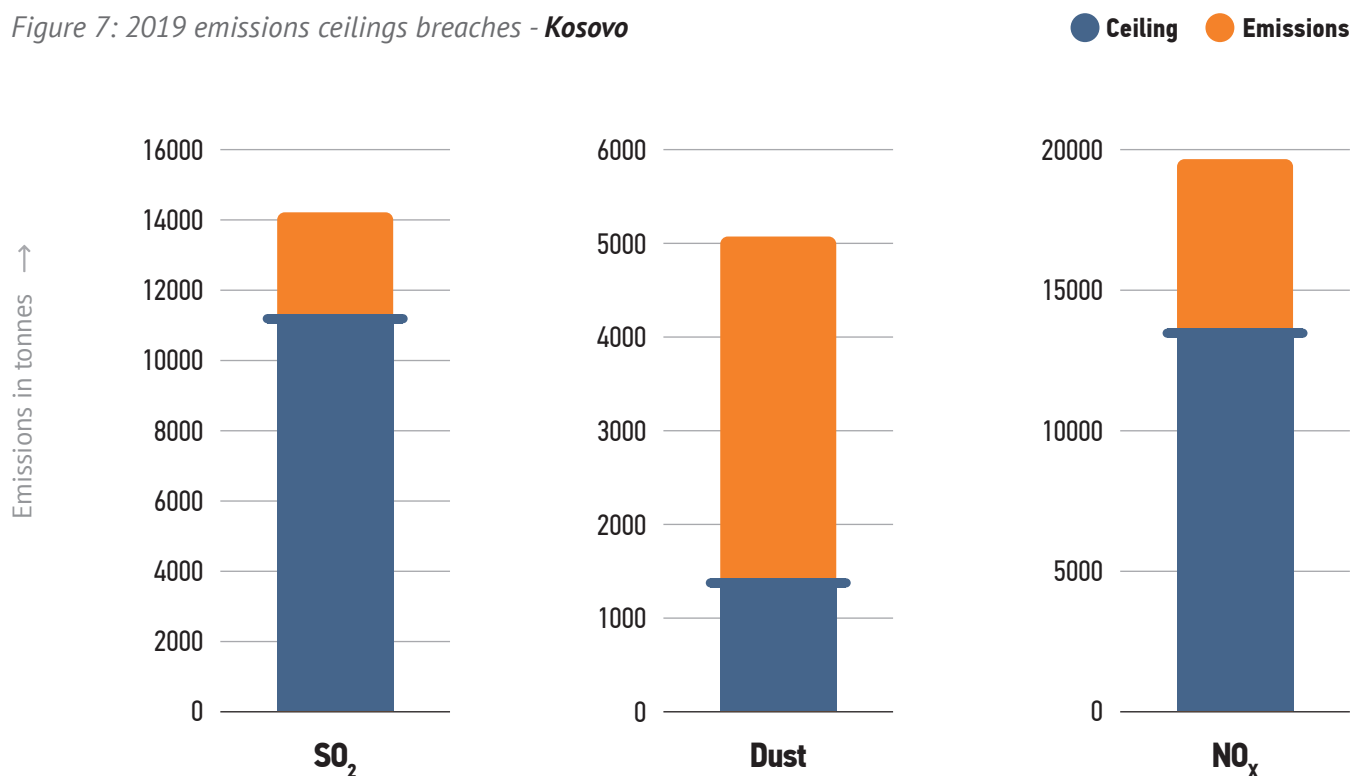
Even though the overall number of operating hours of the five units was slightly smaller in 2018, the SO₂ emissions recorded a 20 per cent increase, or 2,503 tonnes in absolute numbers.

Another inconsistency in Kosovo's NERP is that the overall 2019 ceilings for the three pollutants in the main body of the document are substantially different from the ceilings calculated in Annex 2 of the NERP, especially in the case of dust. This annex is not part of the publicly available NERP and has been leaked to the authors of this report.

The biggest problem is caused by the dust emissions. The two units of Kosova B emitted 4,559 tonnes of dust in 2018, while the national ceiling for this pollutant for 2019 in Annex 2 is 1,382 tonnes.

Whichever reference we take – the numbers of the publicly available NERP or those of Annex 2 – Kosovo is breaching all three 2019 ceilings. The difference is in the scale of the breach in the case of dust emissions: if we take the publicly available NERP as a reference, dust emissions were 1.26 times as high as the ceiling, or in absolute numbers, 5,042 tonnes, when the maximum allowed was 3,993. If we take into account the Annex 2 figures, the scale of the dust ceiling breach is much larger – the emissions were 3.65 times as high as the allowed maximum.

Figure 7: 2019 emissions ceilings breaches - Kosovo



Ongoing investments

The NERP recognises that Kosova A and B power plants need to be technically upgraded in order to comply with the emission standards in force and mentions that this task will be based on the recommendations of the feasibility study for Kosova B and the experience of Japanese International Cooperation Agency (JICA) projects in Kosova A. The document also warns that this will imply periods of maintenance that will reduce the total output.⁴²

Units A3, A4 and A5 included in the NERP are the only units with any kind of pollution control equipment, namely electrostatic precipitators for reducing dust emissions. All units are in dire need of pollution reduction equipment for SO₂ and NO_x, but the most urgent measure, given the 2018 emissions, is reducing dust emissions at Kosova B1 and B2, which stood at 4,559 tonnes.

At the end of the NERP's implementation, 31 December 2027, the overall dust emissions of all five units should be 475 tonnes, according to the publicly available NERP.

USAID was expected to deliver a Financing Strategy for the Rehabilitation of Kosova B by the end of 2019, according to the anticipated results of the five-year project REPOWER - Kosovo. However, the issue is glossed over at the end of the press release marking the end of the project, and the 'Financing Strategy' is merely referred to as 'defining financing options'.⁴³ No such document was found online.

The only project that would reduce NO_x and dust emissions at the Kosova B coal power plant, for which funding is secured, is a EUR 76.4 million grant under the Commission's Instrument for Pre-Accession II (IPA II) financing framework developed in 2012, covering the 2014-2020 period.

The contract for the project was signed in November 2019 by the EU Office in Kosovo with Engineering Dobersek GmbH (Germany), Hamon Thermal Europe SA (Belgium), and RJM Corporation (EC) Ltd. (UK). Emissions reductions cannot be expected sooner than 2023, as the rehabilitation project has a three year implementation timeline.

Although surprising at first glance, the near doubling of the project cost from the EUR 40 million estimate in the project proposal submitted to IPA,⁴⁴ to the EUR 76.4 million announced in early 2020, is most likely explained by the fact that in the project proposal submitted in 2018 only B1 was expected to be rehabilitated, whereas the approved project mentions both units at Kosova B being envisaged for reconstruction.⁴⁵

From the same funding proposal, it is notable that the Government has no intention of reducing any of Kosova A's emissions:

The TPP Kosovo A has already exceeded its lifetime and large investments would be needed for its rehabilitation and to bring it closer to the required environmental standards. Given its limited operational lifetime, large investments are not considered by the government as economically feasible. However, TPP Kosovo A is expected to continue its operation until the planned new power plant "Kosovo e Re" (a privately operated 500 MW KRPP) will be functional.⁴⁶

But it is becoming very clear that the Government needs to stop conditioning the enforcement of the NERP on the defunct Kosova e Re project, whose main investor withdrew in March 2020.⁴⁷

⁴² Kosovo *NERP*, published on the Office of the Prime Minister's website in September 2019.

⁴³ Michael Blair, DT Global: *USAID-funded REPOWER-Kosovo Activity: Five Years of Key Achievements*, 17 October, 2019.

⁴⁴ European Commission: *Instrument for Pre-Accession Assistance (IPAII) 2014-2020: EU Support to clean air in Kosovo*, undated, last accessed 29 May 2020.

⁴⁵ RJM Global: *RJM wins EU NOx reduction project in Kosovo*, 15 January 2020.

⁴⁶ European Commission: *Instrument for Pre-Accession Assistance (IPAII) 2014-2020: EU Support to clean air in Kosovo*, undated, last accessed 29 May 2020.

⁴⁷ Susanna Twidale: *ContourGlobal turns away from coal, axing plans to build Kosovo plant*, Reuters, 17 March 2020.

Montenegro

Opt-out

Montenegro is the only country in the Western Balkans – apart from Albania, which has no functional large combustion plants – that may comply with the LCPD requirements in the next few years.

The 225 MWe Pljevlja I lignite power plant has only one unit, and thus could not be subject to a National Emissions Reduction Plan, so the only options were to either comply with the emission limit values by the end of 2017, close the plant, or go for a limited lifetime derogation (opt-out).

Since the plant generated just under 40 per cent of Montenegro's electricity in 2018,⁴⁸ closing it looked unattractive. Compliance should have been prioritised, but the Government and 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. If it continues to operate after this, it must undergo a retrofit to comply with emissions limit values for new plants, not existing ones.

In fact, once Pljevlja II was refused financing in October 2016,⁴⁹ and later, at the end of 2017, the contract with the Czech Republic's Skoda Praha was annulled,⁵⁰ preparations for Pljevlja I's rehabilitation speeded up, and a tender for the project design was published in early 2018.

In March 2018, Montenegro's Environmental Protection Agency finally issued the Pljevlja I plant with an integrated environmental permit, which stipulated that it must comply with the 2017 LCP BREF standards by 2023.⁵¹ As such, it is the first existing plant in the region which has been required to do so.

Emissions in 2019

Retrofitting or closing the plant is certainly urgent. Although its estimated⁵² SO₂ emissions in 2019 (46,639.61 tonnes) were much lower than those in 2018 (64,475 tonnes),⁵³ they were still much more than its SO₂ emissions for 2016, which totalled 25,459 tonnes.⁵⁴ The reason for these huge variations is unclear, and they are not fully accounted for by differences in operating hours in the different years.

Its 2019 NO_x emissions, at 4,394 tonnes, were also substantially lower than in 2018 (7,786 tonnes).⁵⁵

Ongoing investments

Pljevlja I used up 7,081 of its 20,000 hours in 2018,⁵⁶ and another 6,728 in 2019.⁵⁷ It is planned that it will not keep up this level of operation, but will instead undergo works until 2021 to fit desulphurisation and de-NO_x equipment and to improve the functioning of the electrostatic precipitator.⁵⁸

⁴⁸ *Regagen: Report on the state of the Montenegrin energy sector in 2018*, July 2019.

⁴⁹ *BNE Intellinews: Czech Export Bank balks at backing Skoda Praha's Montenegrin contract*, 26 October 2016.

⁵⁰ *CEE Bankwatch Network: Montenegro drops Skoda Praha as partner for Pljevlja II coal plant – now time to drop the project altogether*, 4 January 2018.

⁵¹ *Montenegro Environmental Protection Agency website*, 26 March 2018.

⁵² *The emissions are considered an estimate because although the plant has continuous monitoring equipment installed, according to a statement by Montenegro's representative at the Energy Community environmental task force meeting, 25 April 2019, it is not working accurately.*

⁵³ *EEA EIONET Central Data Repository*, report version 25 April 2019, data not yet verified by the European Environment Agency.

⁵⁴ *HEAL, CAN Europe, Sandbag, CEE Bankwatch Network and Europe Beyond Coal: Chronic coal pollution - EU action on the Western Balkans will improve health and economies across Europe*, February 2019.

⁵⁵ *EEA EIONET Central Data Repository*, report version 25 April 2019, data not yet verified by the European Environment Agency.

⁵⁶ *EEA EIONET Central Data Repository*, report version 25 April 2019, data not yet verified by the European Environment Agency.

⁵⁷ *EEA EIONET Central Data Repository*, report version 11 May 2020, data not yet verified by the European Environment Agency.

⁵⁸ *EPCG website: Tender for TPP Pljevlja environmental reconstruction launched*, 11 July 2019.



Pljevlja, Montenegro
Photo credit: Nevena Petkovic / Green Home

⁵⁹ EPCG website: *Tender documentation for the open public procurement process for works on the ecological reconstruction of Pljevlja power station, Unit 1*, 11 July 2019.

⁶⁰ Balkan Green Energy News: *Chinese-Montenegrin consortium wins bid for eco-reconstruction of TPP Pljevlja*, 12 November 2019.

⁶¹ Milorad Milošević: *Antikorupcijska agencija Kine sumnjičila Blažove partnere za mita*, *Vijesti*, 19 October 2019, EPCG: *Izabrana najpovoljnija ponuda za ekološku rekonstrukciju TE "Pljevlja"*, 8 November, 2019.

⁶² Dan: *Analiza konsultanta za energetiku Momira Škopelje: Termoelektrana godišnje u minusu 50 miliona eura*, 12 November 2019.

In July 2019 a tender was launched for the works contractor for the project,⁵⁹ and in November, a consortium comprising China's Dongfang, and Montenegro's BB Solar, Bemax and Permonte was chosen.⁶⁰

The choice raised eyebrows within Montenegro, as some of Dongfang's staff were suspected by the Chinese government of accepting bribes from suppliers; BB Solar is half-owned by the President of Montenegro's son, and Bemax is another well-connected company that often wins government contracts.⁶¹

Although it is clear that action needs to be taken to reduce Pljevlja's terrible air pollution, the fact that no feasibility study has been disclosed for the modernisation project has caused NGO Eco-Team to question whether a lifetime extension of the coal plant is indeed the right approach.⁶²

North Macedonia

State of play with the NERP

North Macedonia opted for all large combustion plants to be part of a National Emissions Reduction Plan (NERP). After the draft Plan was submitted to the Energy Community, in October 2016 the Secretariat provided its assessment, confirming that it was developed in accordance with the applicable Energy Community legal framework.

In April 2017, according to the Energy Community website, the Government of North Macedonia adopted the NERP, after having incorporated the Secretariat's comments.⁶³ However, North Macedonia did not carry out any public consultations or Strategic Environmental Assessment and this Government Decision is not published in the Official Gazette or on the Government website.

Neither of North Macedonia's coal power plants has an integrated pollution prevention and control (IPPC) permit, which makes the enforceability of the ceilings questionable. But in December 2019, the Ministry for Environment re-initiated the procedure for the REK Bitola IPPC permit which would resolve the issue, at least partially.

The draft document⁶⁴ was significantly changed from the first drafts dating all the way back to 2007 and has laid out a clear timeline to bring the power plant in line with the Industrial Emissions Directive Annex V Part 1 emissions limit values before 2027.

The power plant, whose emissions are single-handedly breaching the national ceilings for SO₂ and dust, would remain non-compliant with the NERP ceilings for SO₂ throughout this period. However, the IPPC permit would have obliged the operator to fit a dust filter by 2023 and to start fitting desulphurisation equipment on time to reach compliance by 2027. It would also have provided the means for legal action if the operator does not adhere to the deadlines.

However, six months later, as of May 2020, the IPPC has not yet been adopted. This has happened several times before in the last 13 years, with a permit being drafted and public consultations being held without any outcome, resulting in the power plant breaching all legal deadlines to adopt and implement the permit.

Since the IPPC permits are currently the only mechanism in the national legislation that makes the targets from the NERP legally binding, this needs to be addressed urgently.

Compliance with the 2019 NERP ceilings

Reported emissions for 2019⁶⁵ showed a slight increase in dust and NO_x emissions from the coal fired power plants that seems to be in line with the increase of operating hours. But SO₂ emissions have had such an increase compared to 2018 that the three units of the Bitola power plant are now the biggest single emitter of this pollutant in the Western Balkans at the individual plant level.

SO₂ emissions were already the biggest problem in North Macedonia, because neither REK Bitola nor REK Oslomej have DeSO_x equipment installed. Yet these power plants were nowhere near the worst offenders in the region, at least not until 2019.

⁶³ Energy Community: *North Macedonia's implementation progress of Energy Community acquis*, last accessed 29 May 2020.

⁶⁴ Ministry of the Environment and Spatial Planning: *REK Bitola draft IPPC*, December 2019.

⁶⁵ EEA EIONET *Central Data Repository*, report version 16 April 2019, data not yet verified by the European Environment Agency.

In just one year, SO₂ emissions from North Macedonia's coal power plants have doubled. Total emissions in 2019 were 108,032 tonnes, which is 6.8 times as high as the 15,855 tonnes ceiling from the NERP and exactly twice as high as their SO₂ emissions in 2018, which were 53,855 tonnes.

The two stacks of REK Bitola, B1+B2 and B3 remain the biggest contributor to SO₂ emissions, with 67,300 and 38,131 tonnes respectively. The B1+B2 emissions are more than 10 times as high as the stack's individual ceiling and the B3 emissions are an astonishing 13 times as high as its individual ceiling. This makes the B3 stack of REK Bitola the worst offender in the region in terms of breaching its individual ceiling.

REK Oslomej, with 2,301 tonnes of SO₂ emissions, has also increased its contribution by 2.5 times compared to its 1,031 tonnes in 2018, and this cannot be attributed to the slight increase of operating hours in 2019. However, the plant is still within its individual ceiling of 4,229 tonnes, albeit much closer to it than it was in 2018.

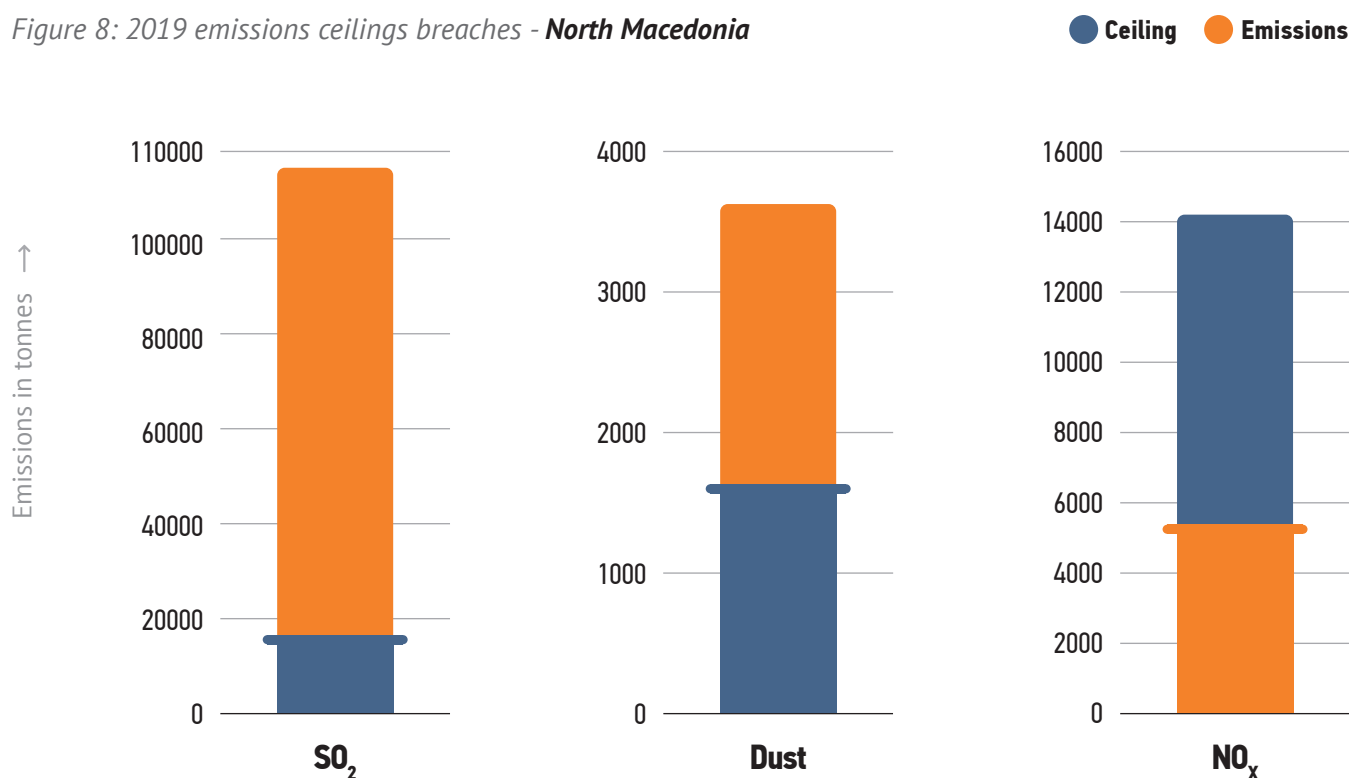
Total dust emissions in 2019 remained more than twice as high as the national ceiling. The three stacks of the coal power plants emitted 3,777 tonnes of dust compared to the 1,738 tonne ceiling in the NERP. The slight increase from 3,586 tonnes in 2018 is probably because of the increase in operating hours.

*Oslomej, North Macedonia
Photo credit: Ioana Ciuta*

Individually, the REK Bitola B1+B2 stack emitted 2,575 tonnes, the REK Bitola B3 stack 1,021 tonnes and REK Oslomej 181 tonnes of dust. Both of the Bitola stacks have dust emissions that are three times higher than their individual ceilings.

NO_x emissions remain significantly lower than the ceilings, although the national ceiling for 2019 is set at 14,088 tonnes – 1,417 tonnes lower than the one for 2018 – and the emissions from the coal power plants were 5,617 tonnes – 909 tonnes higher than in 2018. The REK Bitola stacks were the biggest contributor, with 5,281 tonnes, but were still using only half of their individual ceiling.

Figure 8: 2019 emissions ceilings breaches - North Macedonia



Ongoing investments

All investments in pollution control for North Macedonia's coal power plants have been put on hold.

The tender for the reconstruction and modernisation of the electrostatic precipitator in REK Bitola⁶⁶ that was cancelled in September 2019⁶⁷ has not yet been restarted as of May 2020. The desulphurisation unit is still stuck in the feasibility study phase, and according to the latest draft IPPC⁶⁸ permit for the power plant, it is planned to be put into operation in December 2026.

In March 2020, the Ministry of Environment confirmed that the EIA permit for the reconstruction of REK Oslomej that included a new power generator running on imported hard coal has expired and is no longer legally valid. This means that REK Oslomej will remain as a backup unit with no investments in pollution control until it is phased out and replaced by the photovoltaic power plant that is planned at the site of the old coal mine.⁶⁹

⁶⁶ Government of North Macedonia Procurement Portal: [Tender for the reconstruction and modernisation of the electrostatic precipitator in REK Bitola](#), March 2019.

⁶⁷ Government of North Macedonia: [Decision to cancel the Tender for the reconstruction and modernisation of the electrostatic precipitator in REK Bitola](#), September 2019.

⁶⁸ Ministry of the Environment and Spatial Planning: [REK Bitola draft IPPC](#), December 2019.

⁶⁹ Energy Community News, [North Macedonia becomes first Contracting Party to start converting coal mines to solar fields](#), 18 February 2020.

Serbia

State of play with the NERP

The Government of Serbia submitted its first draft of the NERP within the deadline, by 31 December 2015. No public consultation was organised on the national level for this version of the document, in spite of legal obligations under the Law on Strategic Environmental Assessment in force in Serbia,⁷⁰ which stipulates that plans and programmes adopted by public authorities need to undergo such an assessment and organise public consultations in parallel with the preparation of the plan or programme.

By the same deadline of 31 December 2015, power plants' operators submitted a list of four 'opt-ed out plants', which would be allowed to run for a total number of 20,000 hours until 31 December 2023, without undergoing any pollution control improvements.

The entire process of approval and adoption of the NERP has been marked by a lack of transparency and several contradictions and it took an infringement procedure by the Energy Community Secretariat for Serbia to finally adopt the document.

⁷⁰ Republic of Serbia: *Law on Strategic Environmental Assessment*, Official Gazette No. 135/2004

⁷¹ Ministry for Environmental Protection: *Poziv za učešće u javnoj raspravi o strateškoj proceni uticaja za Nacionalni plan za smanjenje emisija (NERP)*, 24 December 2018.

⁷² Ministry for Environmental Protection: *Izveštaj o strateškoj proceni uticaja za Nacionalni plan za smanjenje emisija (NERP)*, 13 March 2019.

On 24 December 2018, the Ministry of Environment of Serbia published an announcement⁷¹ that it was conducting a Strategic Environmental Assessment (SEA) for the NERP (for the period from 1 January 2018 to 31 December 2027), giving the interested public 30 days to submit written comments.

A public announcement on the Ministry of Environment's website dated 13 March 2019⁷² contains a link to the 'final report' of the SEA for the National Emissions Reduction Plan, but there isn't a Decision by the Ministry to confirm the approval of the final text.



Kolubara lignite mine, Serbia
Photo credit: Dan Wilton / Client Earth

Following up on its 2019 Implementation Report, which noted that ‘despite repeated reminders from the Secretariat and the conclusion of its strategic environmental assessment, the final version of the NERP has not been adopted to date’, the Energy Community Secretariat launched a dispute settlement procedure against Serbia on 15 January 2020. The opening letter argued that ‘in the absence of a legally binding NERP, the existing large combustion plants in Serbia have to comply with the emission limit values of the [LCP] Directive at [the] individual level. This is not the case for the nine concerned plants’.

Serbia’s officials’ first reaction to the infringement procedure was to deny the facts. The Minister of Mining and Energy was quoted⁷³ saying that ‘Elektroprivreda Srbije or EPS and all other relevant companies “are operating absolutely in line” with the plan’s provisions’.

Nevertheless, just a month later, on 13 February 2020, the Ministry of Environment finally adopted the NERP,⁷⁴ but Serbian think-tank RERI warned that the fact that the plan wasn’t approved in one of the legally stipulated formats such as a Decision or Decree means that it may be unenforceable due to the lack of legal framework governing such documents.⁷⁵

More worryingly, two of the deadlines for implementing sulphur oxides emission reductions (at the power plant Nikola Tesla units A3 and A4-A6) were unilaterally postponed, from 2020 to 2022 and 2021, respectively. Therefore the currently adopted NERP no longer corresponds to the version that the Energy Community Secretariat approved in 2017.

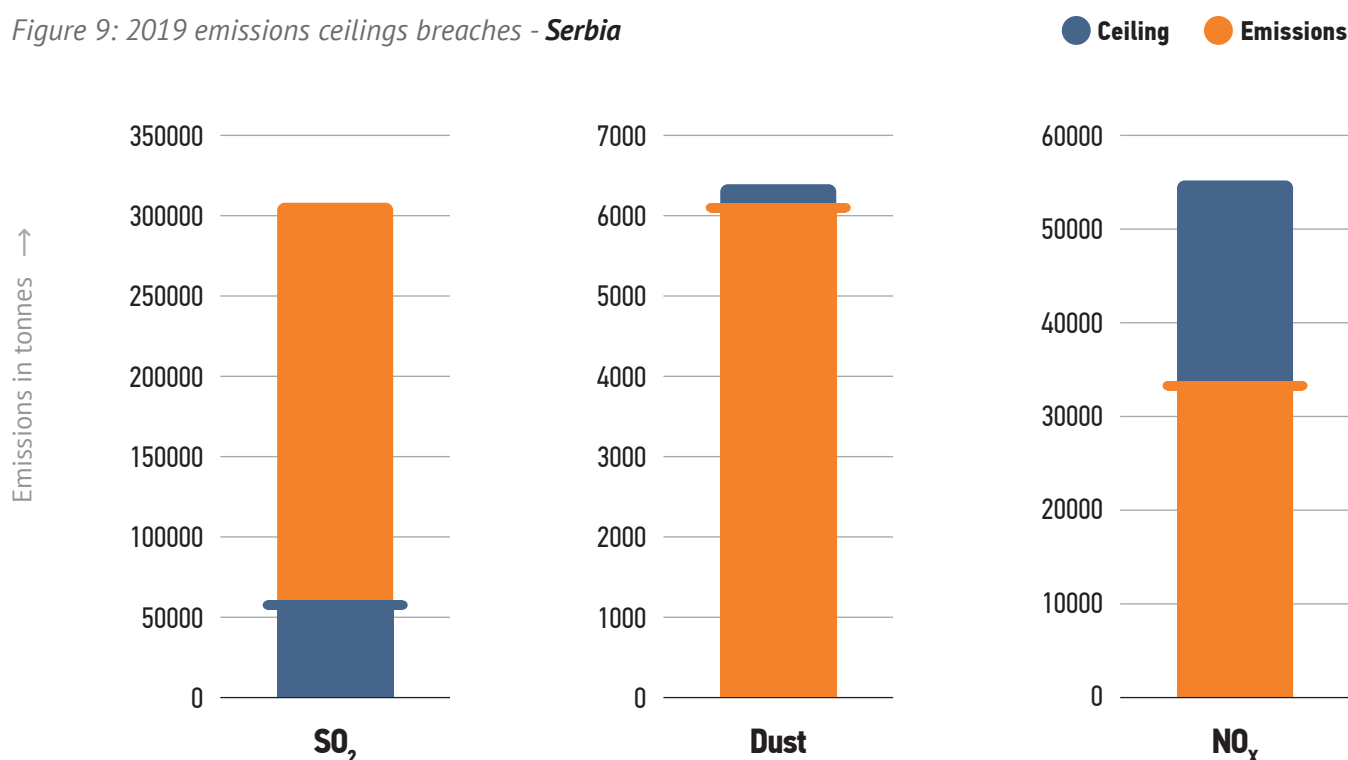
An additional reason to be concerned about the lack of enforceability is the fact that none of the power plants included in the NERP has an Integrated Pollution Prevention and Control (IPPC) permit. These permits would translate the obligations from the NERP into obligations on the plant operator level, but the deadline for applying for IPPC permits is 31 December 2020 (art. 34 of the Law on IPPC). Initially adopted in 2004, the Law was amended in 2015 and further postponed the deadline to the end of 2020.

⁷³ Igor Todorović: *Serbia denies EnC’s claim big plants don’t follow emission reduction plan*, Balkan Green Energy News, 17 January 2020.

⁷⁴ Ministry for Environmental Protection: *Nacionalni plan za smanjenje emisija glavnih zagađujućih materija koje potiču iz starih velikih postrojenja za sagorevanje*, 13 February 2020.

⁷⁵ RERI: *Kako zakasnelo (ne)usvajanje NERP-a utiče na zagađenje vazduha?* February 2020.

Figure 9: 2019 emissions ceilings breaches - Serbia



Compliance with the 2019 NERP ceilings

Overall, emissions from coal power plants in Serbia far exceeded the 2019 ceiling set out in the NERP.

The biggest problem was SO₂ emissions, which breached the national ceiling by 5.6 times. In absolute numbers, the SO₂ emissions of the 14 coal-fired units included in the NERP amounted to 305,306.90 tonnes, a slight decrease from those in 2018, while the 2019 ceiling in the NERP for 18 large combustion plants⁷⁶ is set at a maximum of 54,575 tonnes.

On the plant level, the biggest emitters were Kostolac B, whose SO₂ emissions alone breached the national 2019 ceiling by 1.45 times, at a soaring 79,113 tonnes, followed closely by Nikola Tesla B1 and B2, which emitted 78,837 tonnes.⁷⁷

The case of Kostolac B1 and B2 is particularly alarming, as the power plant underwent a rehabilitation process and in 2017 the installation of desulphurisation equipment by the China Machinery Engineering Corporation was allegedly finalised and put into operation.⁷⁸ The only power plant in Serbia to have installed flue-gas desulphurisation (FGD) equipment breached its individual SO₂ ceiling in the NERP by nearly 10 times!

Given how similar the emissions figure is for the two power plants, it is also noteworthy that the Kostolac B1 and B2 units emitted slightly more SO₂ than Nikola Tesla B1 and B2, even though the latter is a much larger plant, worked 857 hours more and has no De-SO_x equipment fitted.

A spectacular breach of the plant's individual ceiling occurred at Kostolac unit A2: its emissions were 12.9 times its maximum allowance, with 8,187 more tonnes emitted compared to 2018.

A notable decrease in particulate matter (dust) emissions was recorded by the 14 coal-fired units in Serbia included in the NERP, from 6.721 tonnes in 2018 to 6,030, which means Serbia was the only country to comply with the 2019 ceiling for dust. This was expected even in 2018, as all of the units have fitted dust-reduction equipment, or so-called electrostatic precipitators (ESP), in the last several years.⁷⁹

Nitrogen oxide (NO_x) emissions in Serbia in 2019 stood at 60 per cent of the ceiling in the NERP, even though Kostolac A2 emitted 1.09 times as much as its individual NO_x ceiling, or 262 tonnes. This situation raises the question as to why the 2019 NO_x ceiling was established at such a high level.

Ongoing investments

Serbia's energy utility, Elektroprivreda Srbije (EPS) secured financing for a complete overhaul of Kostolac B1 and B2 already in December 2011. A USD 293 million loan was taken by the Government of Serbia on behalf of EPS from China Exim Bank to equip the two units with flue gas desulphurisation technology and bring the plant's SO₂ emissions in line with the Large Combustion Plant Directive,⁸⁰ by the time it would enter into force, January 2018. The company contracted for the works was the China Machinery and Engineering Corporation (CMEC), the same company which is set to build a new unit at the Kostolac B plant.

The were finalised in July 2017 according to media reports,⁸¹ and EPS' 2018 Environmental Report states that: "[A] [t]rial run of the plant was performed in the first quarter of 2017.

⁷⁶ The NERP includes also gas-fired units, such as the NIS ones 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*, 13 February 2020, Annex 1

⁷⁷ EEA: *EIONET Central Data Repository*, report version 31 March 2020, data not yet verified by the European Environment Agency.

⁷⁸ Sandra Jovičević: *Blokovi B1 i B2 u Kostolcu dobili postrojenja za odsumporavanje*, Energetski portal, 18 July 2017.

⁷⁹ *Electric Power Industry of Serbia: 2018 Environmental Report*, May 2019, pages 33, 69, 75, 78, 98, 101

⁸⁰ Only approximately USD 130 million was intended for the De-SO_x equipment, and the rest of the loan was for construction of transport infrastructure facilities – a landing dock on the Danube and railway infrastructure for transportation of gypsum and ash. Source: Serbia Energy/Environment southeast Europe: *Serbia: 130M USD Project of desulphurization in "Kostolac B", with works to the contemporary block. China CMEC as key contractor the project report*, undated.

⁸¹ Sandra Jovičević: *Blokovi B1 i B2 u Kostolcu dobili postrojenja za odsumporavanje*, Energetski portal, 18 July 2017.

After the trial run, performance measurements were done. After the performance measurements, QAL 2 and QAL 3 measurements were performed at TEK0 B1 and B2 unit[s].⁸² However, the same document shows that the application for a construction permit for the FGD installation was submitted only in November 2018 – more than a year after the facility was publicly declared to have been finished. The permit had still not been issued at the time of writing, but was actually rejected twice in December 2018 and January 2019, although the grounds on which rejections were issued by the Serbian authority are unknown.

It is also unclear what happened to the previous construction permit, issued in 2015 – whether it was annulled or whether the construction specifications have changed so much that it no longer applies.

The only explanation we have received so far from EPS and the Serbian Ministry of Energy and Mining is that the gypsum landfill is not ready for the De-SO_x to start operation. However, this excuse seems unlikely considering that it requires the conversion of an already existing open-cast mine into a landfill, which the company has had at least 9 years to prepare (counting from the date the project was financed in 2011).

A public consultation for the updated Environmental Impact Assessment report of the desulphurisation unit at Kostolac B at the request of EPS was launched in December 2019⁸³ and public consultations were held in January 2020. At the time of writing in May 2020, there has been no decision approving this new EIA for the already constructed De-SO_x facility.

The fact that only a 30 per cent reduction in emissions was recorded in 2019 compared to 2018 – while the environmental impact assessment report for the De-SO_x itself mentions a 95 per cent reduction – raises numerous questions about whether there is something wrong with the De-SO_x equipment in Kostolac B1 and B2. There is no information available to the public about what is going on – is it a construction mistake, an operation flaw, or a mix of both? Such information should not be withheld from the public, who ultimately pays the bills – both the financial and the health ones.

Nikola Tesla units A3-A6 have also been considered for retrofits and fitting of desulphurisation equipment since 2011. This project, however, moved at a slower pace than Kostolac B1 and B2, and the beginning of works was only announced in 2019.⁸⁴ Interestingly enough, the announcement regarding the start of works came more than a month before the EIA decision had been issued by the Ministry of the Environment. This project is financed through a loan from Japan's Export Credit Agency, JICA,⁸⁵ and the contractor is Mitsubishi Hitachi Power Systems.

According to the financing agency, the rehabilitation should be finalised by 2022, which explains the adjustment in the adopted version of the NERP, from 2020 to 2022, but does not make it more acceptable.

Regarding permitting, a decision stipulating the scope and contents of an EIA for lifetime extension and capacity increase at Nikola Tesla A1 and A2 was issued in October 2019,⁸⁷ indicating a potential rehabilitation project, while at the time of writing a public consultation regarding disposal of gypsum (a bi-product of De-SO_x) and ash is underway at the Nikola Tesla A power plant.⁸⁸

In the 2019 Annual Environmental Report,⁸⁹ the power plant operator also mentioned that there is a plan to introduce primary nitrogen oxide reduction measures in the coming period on unit A6 of Nikola Tesla, as well as on units B1 and B2 of the same power plant, but no clearer indication of a timeline has been offered.

⁸² Electric Power Industry of Serbia: *2018 Environmental Report*, May 2019, page 98.

⁸³ Ministry for Environmental Protection: *Zahtev za davanje saglasnosti na ažuriranu studiju o proceni uticaja na životnu sredinu projekta izgradnje postrojenja za odsumporavanje dimnih gasova TE Kostolac B na katastarskoj parceli broj 303-k*, 16 December 2019.

⁸⁴ Svetlana Jovanović: *Construction launched on flue-gas desulfurization systems at coal-fired power plant TENTA*, Balkan Green Energy News, 14 February 2019.

⁸⁵ 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.

⁸⁶ JICA: *Flue Gas Desulphurization Construction Project for Thermal Power Plant Nikola Tesla*, undated, last accessed 29 May 2020.

⁸⁷ Ministry for Environmental Protection: *Decision on the scope and contents of the environmental impact assessment for the lifetime extension and capacity increase of TENTA A1 and A2*, 4 October 2019.

⁸⁸ Ministry for Environmental Protection: *Zahtev za odlučivanje o potrebi procene uticaja na životnu sredinu projekta za odlaganje gipsa na kasetu 1 deponije pepela i šljake TE „Nikola Tesla A“*, 14 May 2020.

⁸⁹ Electric Power Industry of Serbia: *2019 Environmental Report*, May 2020, page 71.

Additionally, the Program for the Implementation of the Energy Strategy of Serbia covering 2017-2023 foresees the retrofit of unit A4 in Nikola Tesla power plant, where it is planned to increase the installed capacity to 308.5 MW to 335.3 MW.⁹⁰

Kostolac units A1 and A2 were initially included on the list of plants to benefit from the 'limited lifetime derogation', meaning they would have to be shut down by 2023 if no IED compliance could be achieved, but the operator had a change of heart since the list was first submitted for approval of Energy Community's Ministerial Council in December 2015 and the two units are now included in the NERP. Not only does this mean that they are able to run for a longer time, but in 2019 unit A2 also had a substantial increase in SO₂ and NO_x emissions, by 31 per cent and 11 per cent, respectively.

The Program for the Implementation of the Energy Strategy of Serbia covering 2017-2023 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 this funding.

⁹⁰ Ministry of Mining and Energy: *Implementation programme of the energy sector development strategy of the Republic of Serbia for the period to 2025 year with projections to 2030, 2017-2023*, page 20.

Kostolac B, Serbia
Photo credit: Marius Besu

Conclusions and recommendations

Despite having committed to compliance already in 2005, and in spite of the region's 16 coal plants having caused an estimated 3,900 premature deaths in 2016, not one of the Western Balkan countries has yet brought its power plants into full compliance with the Large Combustion Plants Directive.

Montenegro is the nearest to complying, as it is using the 'opt-out' limited lifetime derogation for its Pljevlja plant. Although Pljevlja can legally continue to operate until 2023 without pollution control investments as long as it does not operate for more than a total of 20,000 hours, it has already used up two-thirds of these hours, and the plant has very high SO₂ and NO_x emissions.

Montenegro is preparing to sign a contract for the modernisation of the Pljevlja plant, but needs to consider more carefully whether this is economically justified.

Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia have developed National Emissions Reduction Plans. However, there are several outstanding concerns: one plan contains two different sets of emissions ceilings (Kosovo) and two others may lack enforceability of the document (Serbia and North Macedonia).

Similar to 2018, all of the Western Balkan countries that made National Emissions Reduction Plans⁹¹ failed to achieve their national emission ceilings for SO₂ in 2019. Regionally, their total SO₂ emissions for 2019 were no fewer than 6 times as high as the overall ceiling.

Dust emissions decreased only slightly in 2019, still representing almost 1.6 times as much as the total dust ceilings for the countries. Kosovo B remained the highest individual emitter, and only Serbia complied with its national dust ceiling.

Only for nitrous oxides did the overall regional emissions from coal plants covered by NERPs amount to less than the 2019 ceilings set in the NERPs. Serbia and North Macedonia remained within their NO_x ceilings, while Kosovo and Bosnia and Herzegovina breached theirs.

An alarming development in 2019 was the doubling of SO₂ emissions from North Macedonia's coal power plants in just one year, for reasons which are not entirely clear.

Emissions from the two stacks of North Macedonia's largest coal plant, Bitola, B1+B2 and B3, amounted to 10 times and 13 times as high as their individual ceilings respectively. This makes Bitola B3 the region's worst offender in terms of breaching its individual ceiling.

In absolute terms, Ugljevik in Bosnia and Herzegovina was the highest-emitting unit for SO₂ in the region in 2019, with 88,302 tonnes, or 9.7 times as much as its ceiling. A desulphurisation unit started test operations in December 2019 but in early 2020, technical problems were reported. It therefore remains to be seen when and whether the benefits of this investment will be felt.

⁹¹ Montenegro could not have a NERP because it only has one large combustion plant, while Albania has no functional plants.



Pljevlja, Montenegro

Photo credit: Nevena Petkovic / Green Home

The enormous breaches and lack of improvement on SO₂ and dust show a worrying neglect of pollution control measures by decision-makers. Cutting pollution is not just a legal obligation, it is a moral duty to protect human health.

The fact that the two largest desulphurisation investments have not yet resulted in significant emissions cuts also shows the need to consider closing more coal plants, sooner than planned.

Work to hold the Western Balkans governments accountable clearly needs to be stepped up. We therefore present below recommendations for the region's governments, the Energy Community, the European Commission and EU Member States.

Recommendations

Governments and utilities need to dramatically increase their efforts to cut pollution. For those plants which cannot be closed, investing in pollution control, especially desulphurisation equipment has to be given immediate priority. 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,⁹² 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, and mechanisms for CO₂ pricing need to be introduced in the Energy Community countries to level the playing field in the European electricity market.

⁹² [*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 \(notified under document C\(2017\) 5225\)*](#)

To the Western Balkan governments:

- Carry out publicly available feasibility studies on whether closure of coal plants or investments in pollution control are more viable. For those worst offending plants which need to continue operating for several more years (see below), by the end of 2020, initiate tenders, environmental assessments and financing arrangements for investments into desulphurisation and other pollution control equipment.
- Make sure desulphurisation equipment already fitted (e.g. Kostolac B, Ugljevik) is actually delivering the reduction rate it was permitted for.
- Clarify the legal status of the NERPs and ensure they are enforceable in all countries.
- Reduce working hours for non-compliant plants in order to comply with emissions ceilings until investments are made.
- 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,⁹³ rather than just the obligatory LCPD and IED Annex V values.

To the Bosnia and Herzegovina authorities:

- Resolve the technical issues with the Ugljevik desulphurisation equipment and until then, reduce the plant's operating hours. Once online, undertake real-time monitoring to ensure that the desulphurisation is being used at all times.
- Publish the results of continuous emissions monitoring in real-time to improve public trust in the work being done to reduce emissions.
- By the end of 2020, complete and publish feasibility studies and launch tenders, environmental assessments and financing arrangements for investments into desulphurisation at Kakanj 6 and 7, Tuzla 5 and 6, and Gacko.
- By the end of 2020, complete and publish feasibility studies and launch tenders, environmental assessments and financing arrangements for dust reduction investments at Gacko and De-NO_x investments at Kakanj 7.
- 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 North Macedonia authorities:

- Formalise the closure of REK Oslomej.
- By the end of 2020, decide on the future of REK Bitola and its rehabilitation or closure, and issue its IPPC permit. Keep operating hours as low as possible to comply with ceilings until dust and SO₂ control equipment is fitted or the plant is closed.

⁹³ *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 (notified under document C(2017) 5225)*

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.
- Decide whether to close or rehabilitate Kosova A as a plant in its own right. Stop linking the closure of Kosova A to the construction of Kosova e Re and look for other ways to cover the electricity supply currently provided by Kosova A.
- Report on 2019 emissions if not done by the time of publication of this report.
- Adopt an updated NERP with a clear set of ceilings compliant with the Large Combustion Plants Directive.
- Ensure the speedy completion of the project to improve continuous monitoring at Kosova B.

To the Montenegro authorities:

- Urgently address the Pljevlja power plant's SO₂ and NO_x emissions by closing or retrofitting the plant. Keep operating hours as low as possible until retrofitting or closure.
- Publish the feasibility study for the modernisation of the plant, if carried out. If not, develop one before signing any contracts.
- Ensure the Pljevlja I retrofit, if it goes ahead, brings the intended pollution control benefits.
- Ensure the functionality of the continuous measuring equipment at the plant.

To the Serbian authorities:

- Urgently clarify to the public the means by which the NERP can be enforced, and if necessary take additional steps to ensure that it is enforceable.
- Urgently clarify to the public the reasons why the Kostolac B De-SO_x is not working and what is going to be done about it. Meanwhile, limit its operating hours to comply with the NERP ceilings.
- Put construction of Kostolac unit B3 on hold at least until it is clarified whether there are issues with CMEC's pollution control technology.⁹⁴
- Ensure the timely and effective completion of the project to fit desulphurisation equipment at the Nikola Tesla B1 and B2 plants.
- Prioritise the installation of dust control equipment for Nikola Tesla A1-3. By the end of 2020, complete tenders, project documentation and financing arrangements.

To the Energy Community:

- Step up communication with the Contracting Parties to resolve the issues identified in this report.
- Where necessary, open dispute settlement procedure cases to underline that further delays are not an option.

⁹⁴ We recommend dropping the investment completely, for climate, health and economic reasons; however, the recommendation listed is derived from the contents of this report.

To the European Commission and EU Member States:

- Support the strengthening of the Energy Community Treaty to ensure adequate penalties in cases of non-compliance.
- Develop mechanisms to ensure that plants not complying with the LCPD cannot so easily export electricity to the EU, such as a CO₂ tax or carbon border tax.
- 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 supports energy transition rather than lifetime extension of coal plants.

Kolubara, Serbia

Photo credit: Dan Wilton / Client Earth



'In 2019, total sulphur dioxide emissions from coal power plants in Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia were more than 6 times higher than allowed, showing no improvement from 2018.'

This demonstrates a worrying neglect of pollution control measures by decision-makers. Cutting pollution is not just a legal obligation: it is a moral duty to protect human health.'