

Coat of Arms

Ministry of Ecology, Sustainable Development and Northern Region Development

MINISTRY OF ECOLOGY, SUSTAINABLE DEVELOPMENT AND NORTHERN REGION DEVELOPMENT

**AIR QUALITY MANAGEMENT STRATEGY**  
**FOR THE PERIOD 2026–2029**  
**WITH AN ACTION PLAN**

Prepared by:

**ECOENERGY CONSULTING DOO, PODGORICA**

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## **ABBREVIATIONS**

| Abbreviation     | Full name                                                                                |
|------------------|------------------------------------------------------------------------------------------|
| <b>AŽS / EPA</b> | Environmental Protection Agency                                                          |
| <b>BaP</b>       | benzo(a)pyrene                                                                           |
| <b>CANU</b>      | Montenegrin Academy of Sciences and Arts                                                 |
| <b>CEDIS</b>     | Montenegrin Electricity Distribution System                                              |
| <b>CEIP</b>      | Centre on Emission Inventories and Projections                                           |
| <b>CETI</b>      | Centre for Ecotoxicological Research of Montenegro                                       |
| <b>CLRTAP</b>    | Convention on Long-range Transboundary Air Pollution                                     |
| <b>DRI</b>       | State Audit Institution                                                                  |
| <b>EE</b>        | energy efficiency                                                                        |
| <b>EEA</b>       | European Environment Agency                                                              |
| <b>EKO FUND</b>  | Environmental Protection Fund of Montenegro                                              |
| <b>EMEP</b>      | Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants |
| <b>EPCG</b>      | Electric Power Industry of Montenegro                                                    |
| <b>ETS</b>       | Emissions Trading System                                                                 |

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|                         |                                                                       |
|-------------------------|-----------------------------------------------------------------------|
| <b>EU</b>               | European Union                                                        |
| <b>GHG</b>              | greenhouse gases                                                      |
| <b>IJZCG</b>            | Institute of Public Health of Montenegro                              |
| <b>IPPC</b>             | Integrated Pollution Prevention and Control                           |
| <b>JRC</b>              | Joint Research Centre of the European Commission                      |
| <b>LEAP</b>             | Long-range Energy Alternatives Planning system                        |
| <b>MER</b>              | Ministry of Energy and Mining                                         |
| <b>MEP</b>              | Ministry of European Affairs                                          |
| <b>MERS</b>             | Ministry of Ecology, Sustainable Development and Northern Development |
| <b>MF</b>               | Ministry of Finance                                                   |
| <b>MONSTAT</b>          | Statistical Office of Montenegro                                      |
| <b>MS</b>               | Ministry of Transport                                                 |
| <b>MUP</b>              | Ministry of the Interior                                              |
| <b>MPŠiV</b>            | Ministry of Agriculture, Forestry and Water Management                |
| <b>NECP</b>             | National Energy and Climate Plan of Montenegro                        |
| <b>NMVOC</b>            | non-methane volatile organic compounds                                |
| <b>NO<sub>x</sub></b>   | nitrogen oxides                                                       |
| <b>O<sub>3</sub></b>    | ground-level ozone                                                    |
| <b>OIE</b>              | renewable energy sources                                              |
| <b>PAH</b>              | polycyclic aromatic hydrocarbons                                      |
| <b>PM<sub>10</sub></b>  | particulate matter with an aerodynamic diameter less than 10 µm       |
| <b>PM<sub>2.5</sub></b> | particulate matter with an aerodynamic diameter less than 2.5 µm      |
| <b>PRTR</b>             | Pollutant Release and Transfer Register                               |
| <b>QA/QC</b>            | quality assurance and quality control                                 |
| <b>SO<sub>2</sub></b>   | sulphur dioxide                                                       |
| <b>UNECE</b>            | United Nations Economic Commission for Europe                         |

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|                 |                                                            |
|-----------------|------------------------------------------------------------|
| <b>UNEP</b>     | United Nations Environment Programme                       |
| <b>Vlada CG</b> | Government of Montenegro                                   |
| <b>WHO</b>      | World Health Organization                                  |
| <b>ZCG</b>      | Union of Municipalities of Montenegro                      |
| <b>ZHMS</b>     | Institute of Hydrometeorology and Seismology of Montenegro |

## INTRODUCTION

The Air Quality Management Strategy with an Action Plan for the period 2026–2029 (hereinafter: the Strategy 2026–2029) represents a continuation of strategic planning in the field of air quality in relation to the National Air Quality Management Strategy of 2013, which has so far been implemented in accordance with two action plans — the Action Plan for the period 2013–2016 and the Action Plan for the period 2017–2020. In addition to ensuring continuousness in strategic planning, the new strategic framework reflects a comprehensive approach to policy planning in this area and, consistent with the principle of rational planning, encompasses all plans and programmes developed to date, which largely arise from the process of alignment with European legislation in this field. Specifically, the new Strategy 2026–2029 is intended to consolidate the air quality plans for the three established air quality zones (Northern, Central and Southern), thereby replacing the plans previously prepared for the Municipality of Pljevlja (2013), the Municipality of Nikšić (2014), and the Capital City of Podgorica (2015). Furthermore, the new Strategy 2026–2029 should incorporate the Programme of Measures for Air Pollution Control, which has been prepared in accordance with the requirements of relevant EU legislation and the final benchmark for negotiating Chapter 27, considering their shared purpose and objectives related to improving air quality and protecting the environment and human health.

The new Strategy 2026–2029 is adopted for a period of four (4) years, which is conditioned by the European framework for air pollution control plans, under which targets for reducing emissions of air pollutants are set up to 2029.

The preparation of the Strategy 2026–2029 aims to reduce greenhouse gas emissions, as well as to meet obligations for reducing emissions of air pollutants (sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), ammonia (NH<sub>3</sub>), particulate matter (PM) and volatile organic compounds (VOC)), and to reduce emissions from key sources at the national level, including the combustion of solid fuels in households, transport and energy production, with particular reliance on the decarbonisation dimension of the National Energy and Climate Plan. Furthermore, the Strategy 2026–2029 must precisely define mandatory reductions for pollutants whose key sources are not within the energy sector (e.g. ammonia emissions and emissions of volatile organic compounds).

### Structure of the document

This document, in accordance with the Methodology for the Development of Policies and the Preparation and Monitoring of the Implementation of Strategic Documents, contains a detailed analysis of the situation in the field of air protection, strategic and operational objectives with defined performance indicators, a description of key activities including the activities of the authorities responsible for monitoring the implementation of the Strategy, the reporting and evaluation framework, as well as the Action Plan for the period 2026–2029.

One of the final benchmarks for negotiating Chapter 27 – Environment and Climate Change also determines the content of this document. In the field of air quality, Montenegro is required to

## ***Air Quality Management Strategy for the period 2026–2029***

fully align with the revised Directive on the reduction of national emissions of certain air pollutants (NEC Directive 2016/2284/EU), to present an analysis of cost-effective emission control strategies up to 2029 and beyond 2030, to define mandatory emission reduction commitments, as well as to report annually on its emissions in accordance with the Directive and the Convention on Long-range Transboundary Air Pollution, as well as to prepare a National Air Pollution Control Programme. Furthermore, Montenegro is expected to improve the implementation of the EU acquis in this area through the regular adoption of measures to reduce air pollution at the national level, particularly in zones where EU air quality limit values are exceeded, as well as through the preparation or updating of air quality plans in accordance with the Ambient Air Quality and Cleaner Air for Europe Directive, as amended in October 2024.

In line with the above, the Air Quality Management Strategy comprises air quality plans for the three established air quality zones (Northern, Central and Southern), prepared in accordance with the new Air Quality Directive (EU) 2024/2881 to the extent possible given data availability, as well as the Programme of Measures for Air Pollution Control prepared in accordance with the requirements of Directive 2016/2284/EU and the accompanying Implementing Decision (EU) 2018/1522.

Air quality plans provided in this strategy shall be further supplemented by measures determined at local (municipality) level by Local Environment Action Plans in accordance with the Art. 37 of the Law on Environment (OG MNE No. 52/16, 73/19, 84/24), as well as by development of the roadmaps for achieving the new, more stringent limit values for concentrations of air pollutants, which will be introduced as of 2030.

Taking into account the need to optimise the number of strategic documents, as well as the shared objectives of the aforementioned plans and programmes, this strategic document consolidates various obligations arising from European legislation with the aim of placing existing capacities, together with existing policies and measures defined in relevant sectors — primarily through the National Energy and Climate Plan — in the function of reducing air pollution through a strategically structured approach.

The long-term commitment of the Strategy is to establish a pathway toward zero pollution and a toxic-free environment by 2050, while aligning the medium-term objectives for the period 2026–2029 with the EU objectives for 2030. In this way, the four-year implementation period of the Strategy represents the first phase of the transition toward stricter air quality standards and obligations that will apply from 2030.

The principle of gender mainstreaming was considered in the preparation of the Strategy. Given that Montenegro lacks systematic data linking sex, gender, territory, socio-economic status and exposure to air pollution, the Strategy recognizes the obligation to collect and analyse, during implementation, data disaggregated by sex, age, territory, urban/rural type of settlement and, where possible, energy poverty status. Particular consideration is given to women in energy-poor households, children, older persons, pregnant women, persons with disabilities, persons with

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chronic diseases, Roma and Egyptian women and men, as well as workers in sectors with higher exposure to pollution.

In addition, the Strategy relies on the findings of the document "Gender-aware public policies / Air Quality Management Strategy", which indicates that Montenegro lacks systematic research on the impact of environmental pollution and climate change on the health of women, vulnerable and multiply discriminated groups. Therefore, the monitoring of Strategy implementation introduces the obligation that, wherever methodologically possible, data be collected and analysed by sex, age, territory, urban/rural type of settlement, socio-economic status and energy poverty status. Particular attention is paid to women in households that use solid fuels for heating and cooking, women in rural areas, Roma and Egyptian women, persons with disabilities, children, pregnant women, older persons and persons with chronic diseases.

With regard to the strategic environmental assessment, a Decision was adopted not to undertake a strategic environmental assessment for the Air Quality Management Strategy for the period 2026-2029 with the Action Plan ("Official Gazette of Montenegro", No. 41/26). The Decision established that the strategic assessment would not be undertaken, considering that the primary objective of the Strategy is to improve air quality, reduce the negative impacts of air pollution on human health and the environment, that the measures are preventive and corrective in nature and that they do not envisage the implementation of specific infrastructure projects, but rather provide a framework and guidelines for implementing measures. Potential impacts of individual projects and activities, should they arise, will be subject to separate environmental impact assessment procedures in accordance with the applicable regulations.

Without further strategic planning in this area, the negative impacts of air pollution on human health and the environment may multiply, particularly in the Northern and Central Air Quality Zones, where exceedances of suspended particles and benzo(a)pyrene are common during the winter months. The absence of the Strategy would mean maintaining a fragmented approach, weaker coordination among institutions and local self-governments, more difficult financing planning and slower alignment with the new, stricter EU air quality standards.

The entities affected by the problem are all citizens of Montenegro, especially children, pregnant women, older persons, persons with chronic diseases and households affected by energy poverty. The consequences are reflected in increased health risks, higher costs for the health system, reduced quality of life, pressure on ecosystems and additional costs of subsequent alignment of public policies.

During the preparation of the Strategy, the status quo option, a non-regulatory option and a regulatory option were considered. The status quo option would mean continuing air quality management without a new strategic framework, which would not enable systematic alignment with the new obligations arising from the EU acquis, particularly with regard to stricter standards from 2030 and obligations under the NEC Directive. The non-regulatory option, based only on information campaigns, voluntary measures and strengthening administrative practice without a new strategic document, was assessed as insufficient for achieving the objectives. Due to

obligations in the EU accession process, the need for alignment with Directive (EU) 2016/2284 and Directive (EU) 2024/2881 and the identified air quality problems, the regulatory option was selected as optimal, namely the adoption of the Strategy with the Action Plan for the period 2026-2029.

The preparation of the document is coordinated by the Ministry of Ecology, Sustainable Development and Development of the North. The technical basis of the document was prepared by the consulting team listed on the cover page, using data from the Environmental Protection Agency, relevant line institutions, local self-governments and available sectoral analyses. The report from the public consultation and the Ministry's position regarding the comments and suggestions received will form accompanying material to the draft Strategy.

## 1. SITUATION ANALYSIS

This chapter identifies and analytically examines the existing problems in air quality management in Montenegro, together with their causes and potential challenges that could affect the effective implementation of the strategic document.

In addition to an analytical overview of air quality trends for the period 2020–2024, with particular emphasis on the frequency and extent of exceedances of applicable standards, this chapter also includes a comparative review of the situation in the region, an overview of obligations stemming from the European integration process and international agreements, as well as Montenegro's strategic commitments. In addition, the impacts of air pollution and the roles of key stakeholders in implementing measures for its reduction are considered.

This provides a methodologically consistent framework that logically links the identified problems and their causes with the establishment of strategic objectives. Based on such a structured insight, measures and interventions are further elaborated which can respond to identified priorities in a systematic and sustainable manner and contribute to improving air quality management.

The analysis incorporates graphical and textual processing of data from the national air quality monitoring network for the period 2020–2024, together with a comparative analysis of indicators published for more than 30 countries by the European Environment Agency, including the impact of air pollution on human health. The emissions inventory analysis enables a methodologically grounded identification of sectors that predominantly contribute to pollution, along with quantification of their impact, which represents a key basis for shaping strategic priorities and measures.

A review of relevant additional studies and research conducted during the observed period provides supplementary empirical and analytical findings that contribute to the final shaping of strategic considerations in this area, thereby enabling more precise identification of key strengths, weaknesses, opportunities and threats, and ensuring the objectivity of the SWOT

analysis results. The list of data sources, analyses and studies used in the preparation of this chapter is presented at the end of the document in a separate section.

### **Systematization of challenges, causes and consequences**

**Challenge 1:** Elevated concentrations of suspended particles PM<sub>10</sub> and PM<sub>2.5</sub> and benzo(a)pyrene content in the Northern and Central zones. The key causes are the predominant use of solid fuels for household heating, the energy inefficiency of buildings, emissions from energy production, transport and certain industrial activities, as well as unfavourable meteorological conditions in the winter period. The consequences are increased health risks, higher health system costs, reduced quality of life and pressure on ecosystems.

**Challenge 2:** Insufficiently developed data, modelling and reporting system. The causes are limited human and technical capacities, the need to improve the emission inventory and projections, and insufficient linkage of air quality data with data on health, gender, poverty and territorial differences. The consequences are weaker targeting of measures, more difficult monitoring of effects and limited use of data for evaluating public policies.

**Challenge 3:** The need to transition to stricter air quality standards by 2030. The causes are new EU legislation, the long-term zero-pollution objective, transboundary and climate pressures, and the fact that certain measures depend on energy, transport, industrial and local policies. The consequences of inaction would be prolonged exposure of the population and ecosystems to pollution, more difficult closure of negotiating Chapter 27 and higher costs of subsequent alignment.

## **1.1 AIR QUALITY STATUS IN MONTENEGRO**

The air quality monitoring programme includes continuous measurement of pollutant concentrations at nine automatic fixed monitoring stations within the National Air Quality Monitoring Network, distributed across three air quality zones in accordance with the Regulation on the establishment of a network of monitoring sites for air quality monitoring (Official Gazette of Montenegro, Nos. 44/10, 13/11, 64/18).

The analysis covers 13 pollutants for which limit and target values have been established: sulphur dioxide, nitrogen dioxide, carbon monoxide, PM<sub>10</sub> and PM<sub>2.5</sub>, ozone, heavy metals in the PM<sub>10</sub> fraction (Zn, As, Ni, Pb, Cd) and benzo(a)pyrene as a marker of polycyclic aromatic hydrocarbons (PAHs). The period 2020–2024 was selected as representative, taking into account that at the end of 2019 the air quality zones were reviewed and the distribution of monitoring sites within the national network reorganised, a structure that continues to be applied in the current period.

**Illustration 1: Air quality zones**



**Table 1: Municipalities within the air quality zones<sup>1</sup>**

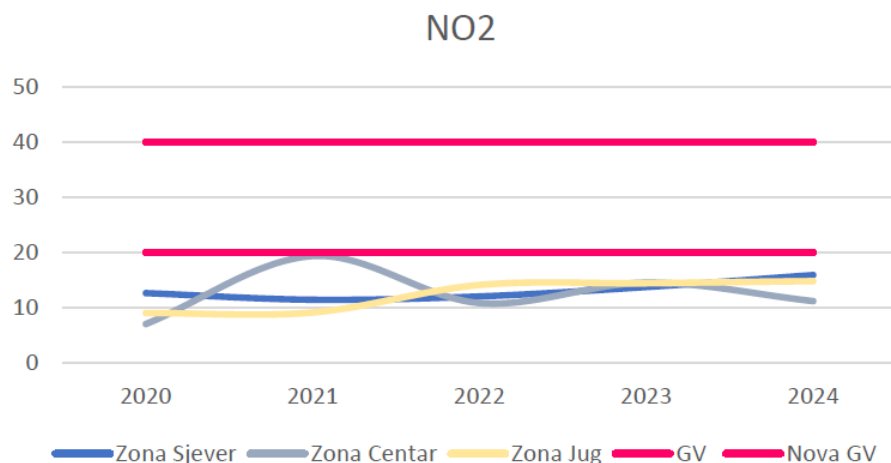
| Air quality zone          | Municipalities within the zone                                                                                               |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Northern air quality zone | Andrijevica, Berane, Bijelo Polje, Gusinje, Pljevlja, Kolašin, Mojkovac, Petnjica, Plav, Plužine, Rožaje, Šavnik and Žabljak |
| Central air quality zone  | Podgorica, Tuzi, Zeta, Nikšić, Danilovgrad and Cetinje                                                                       |
| Southern air quality zone | Bar, Budva, Kotor, Tivat, Ulcinj and Herceg Novi                                                                             |

Figure 1 presents the mean annual concentrations of pollutants in relation to the current limit values and the new limit values that will be applied from 1 January 2030 in accordance with the new EU legislation.

**Figure 1: Mean annual concentrations of nitrogen dioxide (2020–2024)**

<sup>1</sup> The air quality zones were established by the Regulation on the Establishment of a Network of Monitoring Sites for Air Quality Monitoring (Official Gazette of Montenegro, Nos. 44/2010, 13/2011 and 64/2018), which should be updated by incorporating newly established municipalities and reviewing the boundaries of the air quality zones in accordance with Article 7 of Directive (EU) 2024/2881.

## Air Quality Management Strategy for the period 2026–2029

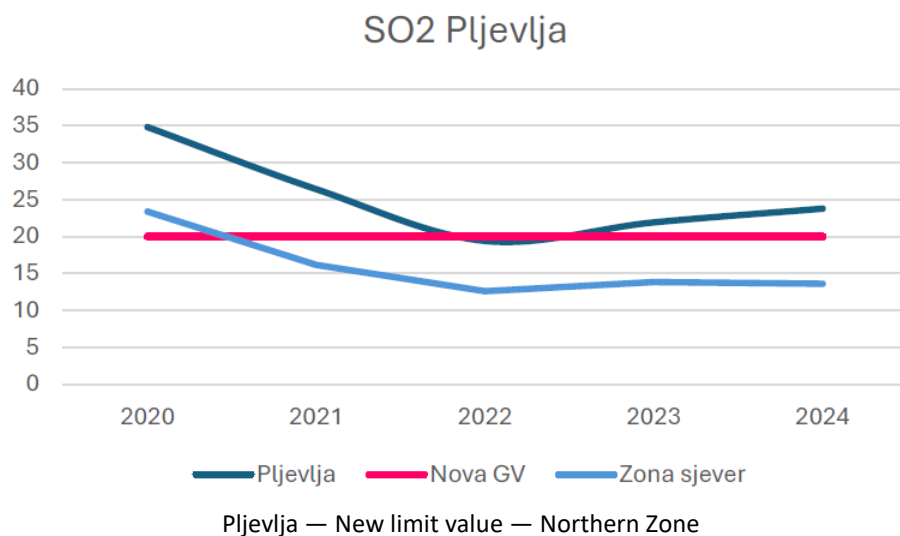


Northern Zone — Central Zone — Southern Zone — Limit value — New limit value

Source of data: Annual reports on the implementation of the air quality monitoring programme<sup>2</sup> (CETI, 2020–2024)

During the observed period, the mean annual concentrations of nitrogen dioxide in all zones and at all monitoring sites were below the current limit value of 40 µg/m<sup>3</sup>. The highest mean annual value, 19.4 µg/m<sup>3</sup>, was recorded in 2021 in the Central air quality zone. Although this value is also below the new limit value (20 µg/m<sup>3</sup>), which will be applied in EU Member States from 2030, attention should be paid in the coming period to nitrogen dioxide concentrations in the Central zone.

**Figure 2: Mean annual concentrations of sulphur dioxide (2020–2024)**



<sup>2</sup> Centre for Ecotoxicological Research, Podgorica Ltd., Annual reports on the implementation of the air quality monitoring programme in the territory of Montenegro, 2020–2024

## ***Air Quality Management Strategy for the period 2026–2029***

*Source: Annual report on the implementation of the air quality monitoring programme<sup>3</sup> (CETI, 2022–2024)*

According to the applicable national and European regulations, no annual limit value has so far been established for sulphur dioxide concentrations. Instead, a daily mean value of 125 µg/m<sup>3</sup> has been monitored, which must not be exceeded more than three times per year. During the observed period, daily mean sulphur dioxide concentrations in all zones were below the limit value, except at the monitoring station in Pljevlja (Gagovića imanje), where 14 days with exceedances of the daily mean value were recorded in 2020. In 2024, at the same monitoring site, two daily mean values were above the limit value, which does not constitute an exceedance. Figure 2 presents a comparison of the mean annual sulphur dioxide concentrations in the Northern air quality zone and at the monitoring site in Pljevlja in relation to the newly prescribed annual mean value of 20 µg/m<sup>3</sup>, which will be applied from 2030. The figure shows that the average mean annual concentrations for the Northern air quality zone are below the prescribed limit value, but that exceedances may be expected at the monitoring site in Pljevlja if appropriate measures are not undertaken.

As indicated by the emissions inventory data, the key source of sulphur dioxide emissions in Montenegro, contributing 99% of total emissions, is electricity generation, specifically the Pljevlja Thermal Power Plant. This event has demonstrated that the plant must not operate without the proper functioning of the flue gas desulphurisation system and the automatic emissions monitoring system, as this may result in impacts on public health, non-compliance with established emission limit values, and ultimately the closure of the plant before the planned deadline. In accordance with the above, this Strategy does not envisage additional measures to reduce sulphur dioxide emissions, since, given the plant's contribution to total emissions, reductions can be achieved solely through the proper functioning of the desulphurisation system or the cessation of the plant's operation.

### **Exceedances of sulphur dioxide concentrations recorded in December 2025**

In December 2025, following the trial commissioning of the Pljevlja Thermal Power Plant after completion of its environmental reconstruction, the sulphur dioxide (SO<sub>2</sub>) alert threshold was exceeded. This triggered the implementation of the short-term action plan required for such situations, which was prepared for the Municipality of Pljevlja in 2017.

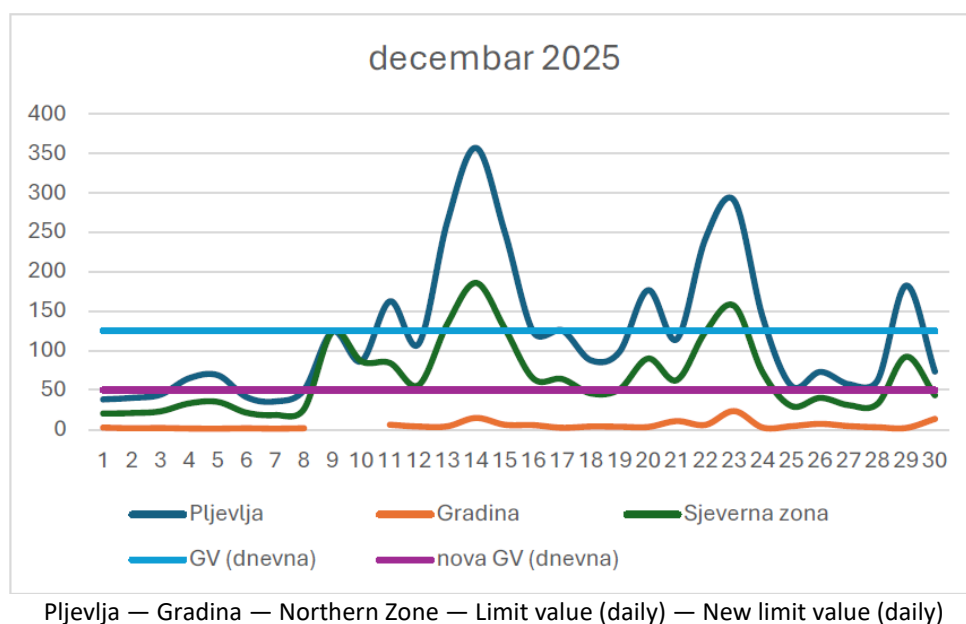
In December 2025, ten daily mean sulphur dioxide concentrations and forty-seven hourly mean values were above the prescribed limit values. During the observed period, extremely unfavorable meteorological conditions were also recorded, including high atmospheric pressure, temperature inversion, and the occurrence of fog. Under such conditions, a stable air layer forms that limits vertical mixing and the exchange of air masses, leading to the accumulation of pollutants in the lower layers of the atmosphere. Due to the temperature inversion, emissions from chimneys were unable to rise above the inversion layer and disperse, remaining instead in

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<sup>3</sup> Centre for Ecotoxicological Research, Podgorica Ltd., Annual reports on the implementation of the air quality monitoring programme in the territory of Montenegro, 2020–2024

the near-surface layers of the air. These meteorological conditions further contributed to increased concentrations of sulphur dioxide in the urban area of Pljevlja, while concentrations in rural areas, such as the Gradina monitoring station, remained significantly lower, indicating the predominantly local character of the pollution.

**Figure 3: Sulphur dioxide concentrations, December 2025, Pljevlja, Gradina, Northern air quality zone**



Pljevlja — Gradina — Northern Zone — Limit value (daily) — New limit value (daily)

Source: Monthly air quality report, December 2025

<https://epa.org.me/mjesečni-izvještaji-o-kvalitetu-vazduha/>

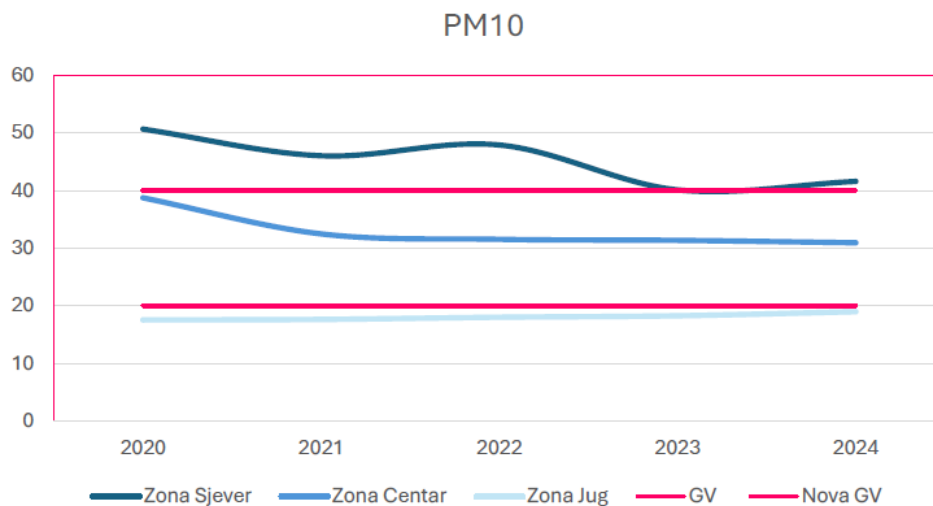
The previous figure presents the daily mean concentrations of sulphur dioxide at monitoring sites in the Northern air quality zone (Pljevlja, Gradina) in relation to the current limit value (125  $\mu\text{g}/\text{m}^3$ ) and the future limit value (50  $\mu\text{g}/\text{m}^3$ ). Significant exceedances are clearly recorded at the monitoring site in Pljevlja (Gagovića imanje), while concentrations in the rural area (Gradina) remain below both the current limit and the stricter limit value of 50  $\mu\text{g}/\text{m}^3$  that will be applied in the EU from 2030. This indicates a localised impact of elevated sulphur dioxide concentrations on the narrower urban area of Pljevlja.

Emission measurements carried out on 17 December at the steam boiler of the Pljevlja Thermal Power Plant unequivocally indicate the source of the increased sulphur dioxide emissions. The automatic monitoring system of the Pljevlja Thermal Power Plant was not operational during that period. Measurements performed by an accredited laboratory<sup>4</sup> showed that the mean half-hour sulphur dioxide value of 3249.0  $\text{mg}/\text{m}^3$  exceeded the prescribed limit value of 200  $\text{mg}/\text{m}^3$ .

<sup>4</sup> Report on emission measurements of pollutants in waste gas from the combustion plant of the Pljevlja Thermal Power Plant, Centre for Ecotoxicological Research Podgorica Ltd., CETI 780.101.16

In accordance with the recorded exceedances and the fact that the automatic monitoring system of the Pljevlja Thermal Power Plant was not operational during that period, the environmental inspector prescribed appropriate measures in line with the Law on Industrial Emissions (Articles 38 and 39).

**Figure 4: Mean annual concentrations of particulate matter PM10 (2020–2024)**



Northern Zone — Central Zone — Southern Zone — Limit value — New limit value

Source of data: Annual reports on the implementation of the air quality monitoring programme<sup>5</sup> (CETI, 2020–2024)

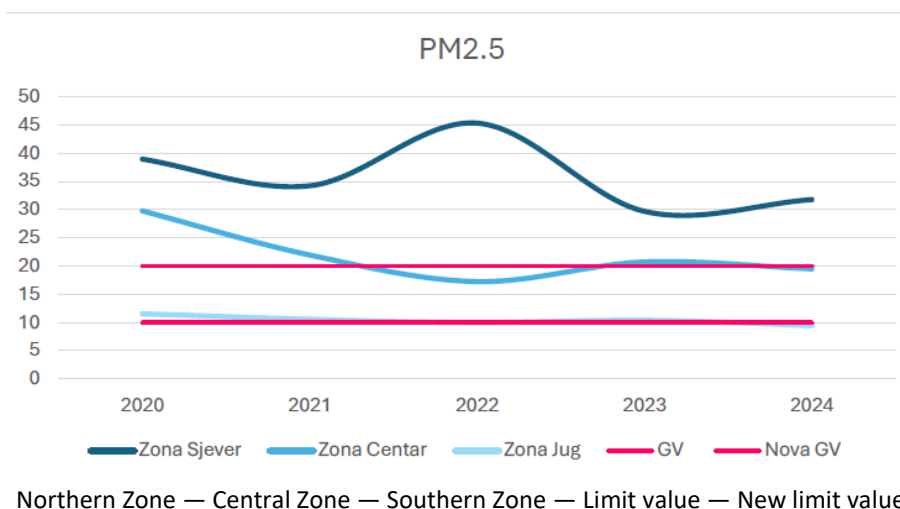
Concentrations of particulate matter PM10 exceeded the limit value in the Northern zone throughout the entire observed period (2020–2024). The lowest mean annual concentrations were recorded in 2023 and 2024 — 40.13 µg/m<sup>3</sup> and 41.6 µg/m<sup>3</sup> respectively — which are very close to the limit value of 40 µg/m<sup>3</sup>.

Figure 3 also presents the new limit value of 20 µg/m<sup>3</sup>, which will be difficult to achieve by 2030 in the Northern zone, as well as in the Central air quality zone, where mean annual concentrations during the past five-year period ranged between 30 and 38 micrograms per cubic metre. In the Southern air quality zone, concentrations of particulate matter PM10 are already below the new limit values and it is necessary to maintain them at this level.

**Figure 5: Mean annual concentrations of particulate matter PM2.5 (2020–2024)**

<sup>5</sup> Centre for Ecotoxicological Research, Podgorica Ltd., Annual reports on the implementation of the air quality monitoring programme in the territory of Montenegro, 2020–2024

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*Source of data: Annual reports on the implementation of the air quality monitoring programme (CETI, 2020–2024)*

With regard to particulate matter of smaller diameter (PM2.5), the situation is very similar to the data on PM10 concentrations. Exceedances of the current mean annual limit value of 20 µg/m<sup>3</sup> were recorded in the Northern zone throughout the entire observed period, while in the Central zone concentrations were below the limit value in 2022 and 2024, and minimal exceedances were recorded in 2021 and 2023 (21.95 and 20.73 µg/m<sup>3</sup>, respectively). Given that, in accordance with the new European air quality legislation<sup>6</sup>, the limit values for particulate matter have been halved, it is necessary to plan appropriate measures to achieve the stricter standards in the Northern zone as well as in the other zones, although the concentration of PM2.5 in 2024 in the Southern zone was below 10 µg/m<sup>3</sup>.

Carbon monoxide concentrations throughout the entire observed period remained significantly below the current limit value of 10 mg/m<sup>3</sup> in all zones and at all monitoring sites. The new limit values that will apply from 2030 do not include an annual mean value, but instead a daily mean value of 4 mg/m<sup>3</sup>, which must not be exceeded more than 18 times per year.

Ozone (O<sub>3</sub>) in the ground-level layer of the troposphere is a secondary pollutant, as it is not emitted directly from sources of pollution but is formed through chemical reactions of precursor substances — nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (NMVOCs) — under the influence of sunlight and elevated temperatures. The process of its formation is known as photo-oxidation and is particularly pronounced during warm, stable, anticyclonic periods. Although it originates as a consequence of urban emissions from transport and industry, the highest concentrations occur in suburban and rural areas, several kilometres from emission sources. As it is highly unstable, ozone remains in the atmosphere from several hours to at most a few days during the summer period.

<sup>6</sup> Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe

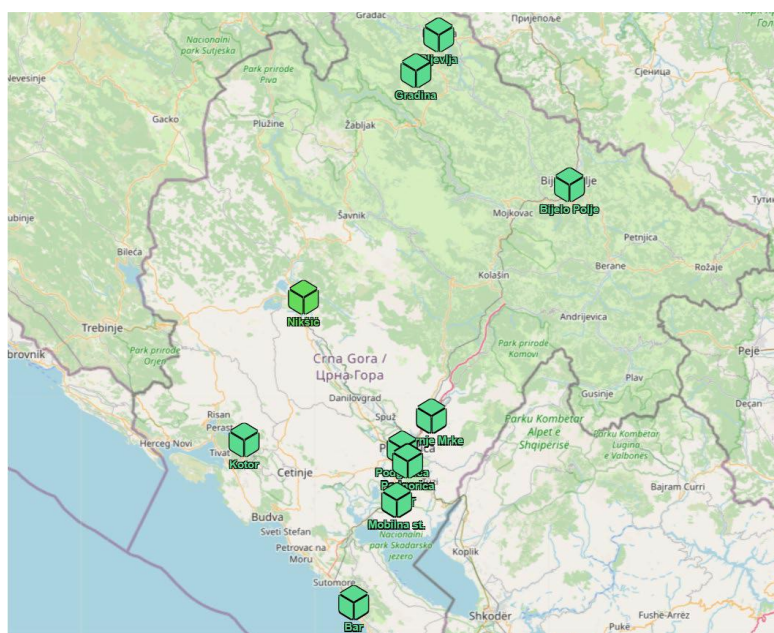
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For this reason, the maximum daily running 8-hour concentrations are monitored, with a limit value of  $120 \mu\text{g}/\text{m}^3$  that must not be exceeded more than 25 times per year, calculated as a three-year average. Exceedances of this air quality standard were not recorded, based on data from the previous three years (2022–2024), at the stations Gradina, Gornje Mrke, Nikšić and Bar.

Mean annual benzene concentrations, monitored at traffic-influenced stations (Podgorica, Kotor), were below the limit value of  $5 \mu\text{g}/\text{m}^3$  in both zones and at both monitoring sites, except in 2020, when the threshold was exceeded at the monitoring site in Podgorica (roundabout at the junction of Georgija Žukova Boulevard and Zetskih vladara).

In addition to pollutants whose concentrations are measured in ambient air and for which data are available in real time on the website of the Environmental Protection Agency, the content of heavy metals and benzo(a)pyrene in particulate matter is determined using reference analytical methods.

### ***Illustration 2: Environmental Protection Agency website – air quality monitoring***

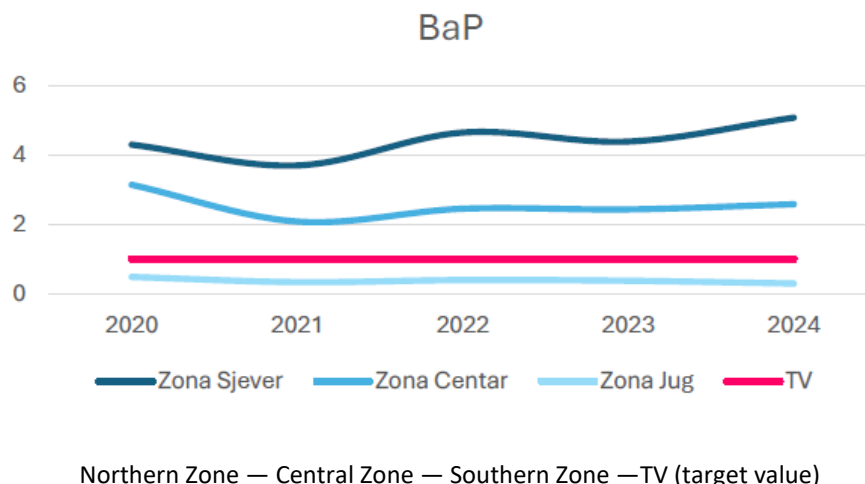


Source of data: <https://www.epa.org.me/vazduh/> 21 November 2025

While exceedances of heavy metal content (Pb, As, Cd, Ni) have not occurred over a period longer than that observed, the target value for benzo(a)pyrene was exceeded in the Northern and Central zones at all monitoring sites throughout the entire five-year period under consideration.

***Figure 6: Mean annual values of benzo(a)pyrene content in particulate matter***

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Source of data: Annual report on the implementation of the air quality monitoring programme (CETI, 2020–2024)

From the presented analysis, the following conclusions may be drawn:

The current limit and target values were exceeded:

- in the Northern air quality zone for the following pollutants: particulate matter PM10 and PM2.5 and benzo(a)pyrene;
- in the Central air quality zone for benzo(a)pyrene, while the limit value for particulate matter PM2.5 was reached in 2024;

In the Southern zone, no exceedances of limit values were recorded, while benzo(a)pyrene content remained below target values throughout the entire five-year period under consideration.

Achieving compliance with the standards for the permitted concentrations of the above pollutants is an absolute priority in relation to the air quality plans that form an integral part of this Strategy.

Given the introduction of new, more stringent air quality standards, the application of which will begin after the period of validity of this strategic document, it is necessary to pay attention to pollutants whose concentrations are above or close to the limit values set by Directive (EU) 2024/2881, which will enter into force on 1 January 2030:

**Table 2: Mean annual concentrations of pollutants (2024)**

| Zone / pollutant | SO <sub>2</sub> | NO <sub>2</sub> | PM10  | PM2.5 | BaP  |
|------------------|-----------------|-----------------|-------|-------|------|
| Northern         | 13.6            | 15.97           | 41.6  | 31.77 | 5.08 |
| Central          | 3.49            | 11.25           | 30.94 | 19.5  | 2.58 |

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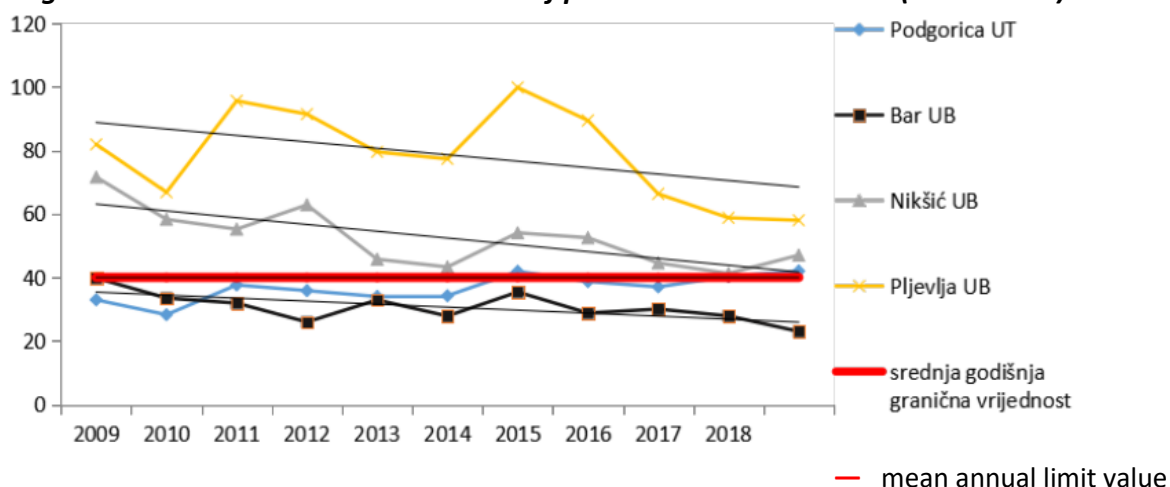
|                      |                            |                            |                            |                            |                           |
|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|---------------------------|
| <b>Southern</b>      | 2.59                       | 14.87                      | 18.97                      | 9.46                       | 0.29                      |
| <b>Limit value *</b> | <b>20 µg/m<sup>3</sup></b> | <b>20 µg/m<sup>3</sup></b> | <b>20 µg/m<sup>3</sup></b> | <b>10 µg/m<sup>3</sup></b> | <b>1 ng/m<sup>3</sup></b> |

\*The limit values presented in the table are taken from Directive (EU) 2024/2881 and will apply from 2030.

### 1.2 COMPARISON OF THE CURRENT AIR QUALITY STATUS WITH THE PREVIOUS PERIOD (2009–2018)

The most critical pollutants in Montenegro remain particulate matter PM10 and PM2.5 and benzo(a)pyrene, which were also identified in the analysis preceding the preparation of this document and covering the period 2009–2018, as presented in Figure 6 and interpreted in the accompanying text.

**Figure 7: Mean annual concentrations of particulate matter PM10 (2009–2018)**



Source of data: Draft Air Quality Management Strategy 2021–2029

- ✓ Despite a noticeable downward trend, during the ten-year period 2009–2018 the mean annual limit value for concentrations of particulate matter PM10 (40 µg/m<sup>3</sup>) was exceeded in Pljevlja (Northern zone) and Nikšić (Central zone) throughout all ten years. In Podgorica (Central zone), the mean annual limit value was slightly exceeded in 2015 (41.91 µg/m<sup>3</sup>) and 2018 (40.3 µg/m<sup>3</sup>), while no exceedances were recorded in Bar.
- ✓ During the period 2009–2018, the mean annual limit value for concentrations of particulate matter PM2.5 was exceeded in two air quality zones (Northern and Central), while no exceedances were recorded in the Southern zone.
- ✓ The mean annual concentration of benzo(a)pyrene of 1 ng/m<sup>3</sup> was above the prescribed target value at all monitoring sites in the Northern and Central air quality zones throughout the entire measurement period, while in the Southern zone it was exceeded in 2010, 2015, 2016 and 2019 and amounted to approximately 2 ng/m<sup>3</sup>.

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- ✓ In addition to the above, annual sulphur dioxide concentrations were exceeded in the Northern air quality zone during 2015, 2016, 2017 and 2019 at the monitoring site in Pljevlja<sup>7</sup>.

A comparison of data for the period 2020–2025 with data from the period 2009–2018<sup>8</sup> indicates a significant improvement in air quality:

- ✓ During the period 2020–2024, no exceedances of sulphur dioxide concentrations were recorded in Pljevlja, as had been observed in the previous period; however, at the end of 2025, following the commissioning of the plant after the completion of environmental reconstruction works, significant exceedances of concentrations occurred. The plant was trialled without ensuring the functioning of the flue gas desulphurisation system.
- ✓ Concentrations of particulate matter PM10 in the Northern air quality zone have approached the limit value of 40 µg/m<sup>3</sup>, and in 2024 amounted to 42.74 µg/m<sup>3</sup> in Pljevlja and 40.49 µg/m<sup>3</sup> in Bijelo Polje, representing a substantial improvement compared with 2009, when the mean annual value in Pljevlja was almost 50% higher (82 µg/m<sup>3</sup>), and in 2011 and 2015 reached 96 µg/m<sup>3</sup> and 100 µg/m<sup>3</sup> respectively. (Measurements were not carried out in Bijelo Polje during the period 2009–2018.)
- ✓ In the Central air quality zone, **there are no longer exceedances of the mean annual values for particulate matter PM10 and PM2.5.**
- ✓ In the Southern air quality zone, **exceedances of benzo(a)pyrene content are no longer recorded** in particulate matter.

### 1.3 BRIEF OVERVIEW OF DATA FROM THE AIR POLLUTANT EMISSIONS INVENTORY

Data from the air pollutant emissions inventory are particularly important because they make it possible to link measured concentrations in the air with specific emission sources. Based on such linkage, the sectors to which pollution reduction measures should be directed can be clearly identified.

The total estimated emissions of specific pollutants, as well as emissions from key sectors, are presented in Table 3.

**Table 3: Pollutant emissions from key sectors (2023)**

| Key sectors / pollutants | NOx (kt) | SOx (kt) | PM2.5 (kt) | PM10 (kt) | BaP g/l TEQ* |
|--------------------------|----------|----------|------------|-----------|--------------|
| Electricity generation   | 8.24     | 68.3     | 6.08       | 6.58      | /            |
| Share (%)                | 47%      | 99%      | 3%         | 4%        | /            |

<sup>7</sup> Annual data for 2025 are not yet available.

<sup>8</sup> Data from 2019 were not taken into account in these analyses due to the reconfiguration of the air quality monitoring network carried out that year; air quality monitoring in 2019 was conducted at different locations, which renders the resulting data incomparable with existing data sets.

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|                                                |            |             |            |            |            |
|------------------------------------------------|------------|-------------|------------|------------|------------|
| Road transport – heavy-duty vehicles and buses | 6.83       | 0.19        | 0.19       | /          | /          |
| Share (%)                                      | 39%        | 3%          | 3%         | /          | /          |
| Household heating                              | /          | 0.19        | 5.08       | 5.22       | 0.83       |
| Share (%)                                      | /          | 0%          | 84%        | 79%        | 99%        |
| Total                                          | 17.89      | 68.8        | 6.08       | 6.58       | 0.84       |
| Share of key sectors in total emissions        | <b>85%</b> | <b>100%</b> | <b>90%</b> | <b>96%</b> | <b>99%</b> |

*\*Unlike other pollutants whose emissions are expressed in kilotonnes, benzo(a)pyrene (BaP) is expressed in grams of toxic equivalents (I TEQ – International Toxic Equivalent).*

*Source of data: NFR tables, Air Pollutant Emissions Inventory, Montenegro 2025 (data for 2023)*

The total percentage of emissions from the three key sectors listed indicates that emissions from all other sectors are almost negligible. The key sources of nitrogen oxide emissions are electricity generation and road transport (heavy-duty vehicles and buses); sulphur oxide emissions originate from electricity generation (99%); while particulate matter and benzo(a)pyrene emissions primarily originate from household heating.

In accordance with the above, **electricity generation, household heating and road transport are the key sectors in which reductions in air pollution can be achieved.**

## 1.4 IMPACT OF AIR QUALITY ON HEALTH

### 1.4.1 Comparison of air quality and the health impacts of pollution in Montenegro with the region and EU Member States

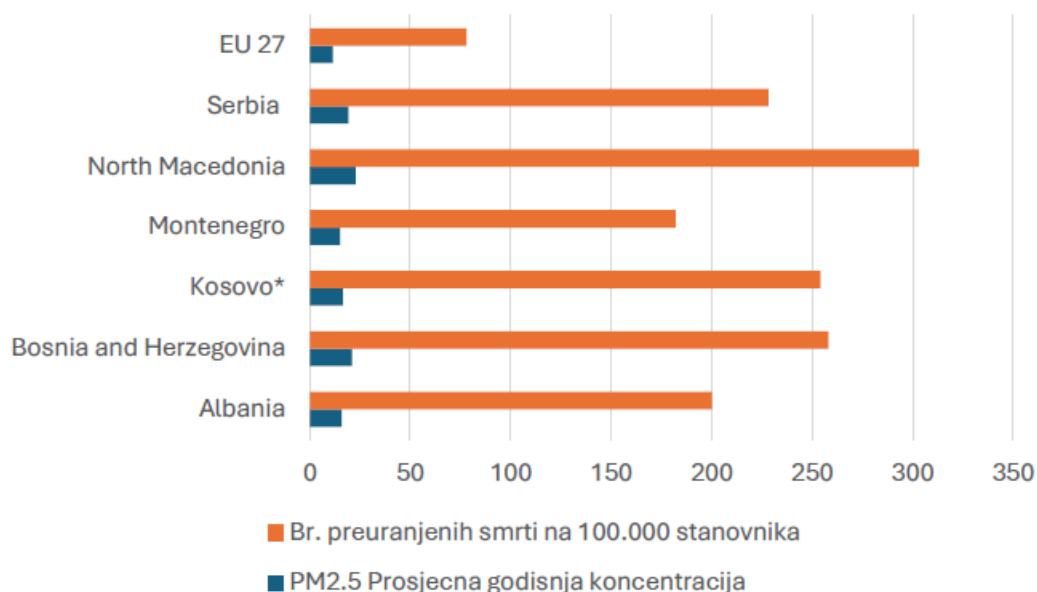
The European Environment Agency's report on air quality in Europe for 2024<sup>9</sup> conveys two key messages:

- Despite continuous overall improvements in air quality, current EU standards are still not met across Europe;
- 96% of the EU's urban population is exposed to concentrations of particulate matter (PM2.5) above the level recommended by the World Health Organization.

**Figure 8: Number of premature deaths attributable to air pollution (PM2.5 region – EU-27)**

<sup>9</sup> European Environment Agency, *Europe's Air Quality Status 2024*  
<https://www.eea.europa.eu/en/analysis/publications/europes-air-quality-status-2024>

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Number of premature deaths per 100,000 inhabitants

PM2.5 average annual concentration

*Source of data: European Environment Agency report on air quality in Europe, 2024*

While the average for EU Member States is 78 premature deaths attributable to population exposure to excessive concentrations of particulate matter PM2.5 per 100,000 inhabitants, this figure in the region (Western Balkan countries) is significantly higher, ranging from 300 in North Macedonia to 182 in Montenegro. Detailed and comprehensive data from the European Environment Agency are presented in Table 4 for comparison.

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**Table 4: Estimated number of premature deaths attributable to air pollution in Europe (2022)**

| Country                    | Total population | Population above 30 years old (1,000) | PM <sub>2.5</sub>   |                     |                    | NO <sub>2</sub>     |                     |                    | Population above 25 years old (1,000) | O <sub>3</sub>      |                     |                    |
|----------------------------|------------------|---------------------------------------|---------------------|---------------------|--------------------|---------------------|---------------------|--------------------|---------------------------------------|---------------------|---------------------|--------------------|
|                            |                  |                                       | Annual mean (µg/m³) | Attributable deaths |                    | Annual mean (µg/m³) | Attributable deaths |                    |                                       | Peak season (µg/m³) | Attributable deaths |                    |
|                            |                  |                                       |                     | Nr                  | Nr/10 <sup>5</sup> |                     | Nr                  | Nr/10 <sup>5</sup> |                                       |                     | Nr                  | Nr/10 <sup>5</sup> |
| Austria                    | 8,979            | 6,159                                 | 10.1                | 3,300               | 53                 | 13.8                | 780                 | 12                 | 6,750                                 | 96.6                | 1,400               | 21                 |
| Belgium                    | 11,617           | 7,625                                 | 10.1                | 4,100               | 54                 | 15.6                | 1,200               | 16                 | 8,356                                 | 88.4                | 1,400               | 16                 |
| Bulgaria                   | 6,839            | 4,975                                 | 15.0                | 9,000               | 180                | 15.6                | 1,500               | 29                 | 5,287                                 | 77.1                | 930                 | 17                 |
| Croatia                    | 3,862            | 2,699                                 | 14.6                | 3,800               | 141                | 13.2                | 450                 | 16                 | 2,914                                 | 101.0               | 980                 | 33                 |
| Cyprus                     | 1,253            | 799                                   | 14.8                | 690                 | 86                 | 23.9                | 260                 | 33                 | 903                                   | 91.4                | 140                 | 15                 |
| Czechia                    | 10,517           | 7,270                                 | 13.1                | 6,900               | 94                 | 12.7                | 730                 | 10                 | 7,843                                 | 95.4                | 1,800               | 22                 |
| Denmark                    | 5,873            | 3,802                                 | 7.8                 | 1,200               | 31                 | 7.4                 | 50                  | 1                  | 4,208                                 | 80.0                | 540                 | 12                 |
| Estonia                    | 1,332            | 913                                   | 5.6                 | 90                  | 9                  | 7.2                 | 20                  | 1                  | 985                                   | 77.1                | 130                 | 12                 |
| Finland                    | 5,548            | 3,739                                 | 4.4                 | 70                  | 1                  | 7.3                 | 50                  | 1                  | 4,088                                 | 75.6                | 440                 | 10                 |
| France                     | 65,795           | 42,817                                | 9.5                 | 20,700              | 48                 | 12.7                | 5,000               | 11                 | 46,453                                | 92.8                | 9,000               | 19                 |
| Germany                    | 83,235           | 58,386                                | 9.2                 | 32,600              | 55                 | 14.3                | 9,400               | 16                 | 63,279                                | 93.5                | 15,200              | 24                 |
| Greece                     | 10,460           | 7,450                                 | 15.8                | 10,700              | 144                | 17.6                | 2,200               | 29                 | 7,980                                 | 95.0                | 2,300               | 28                 |
| Hungary                    | 9,689            | 6,668                                 | 13.8                | 8,600               | 128                | 14.5                | 1,300               | 19                 | 7,274                                 | 96.5                | 2,000               | 27                 |
| Ireland                    | 5,060            | 3,121                                 | 7.1                 | 530                 | 16                 | 9.1                 | 100                 | 3                  | 3,417                                 | 76.7                | 240                 | 7                  |
| Italy                      | 59,030           | 42,749                                | 14.6                | 48,600              | 113                | 16.5                | 9,600               | 22                 | 45,750                                | 103.7               | 13,600              | 29                 |
| Latvia                     | 1,876            | 1,303                                 | 8.7                 | 820                 | 63                 | 9.9                 | 120                 | 9                  | 1,400                                 | 77.3                | 220                 | 15                 |
| Lithuania                  | 2,806            | 1,958                                 | 9.8                 | 1,500               | 75                 | 10.9                | 180                 | 9                  | 2,120                                 | 77.8                | 320                 | 14                 |
| Luxembourg                 | 645              | 422                                   | 7.4                 | 80                  | 17                 | 13.6                | 30                  | 7                  | 471                                   | 90.8                | 50                  | 11                 |
| Malta                      | 521              | 357                                   | 10.7                | 170                 | 48                 | 11.4                | 20                  | 4                  | 401                                   | 96.0                | 60                  | 15                 |
| Netherlands                | 17,590           | 11,585                                | 9.3                 | 5,300               | 45                 | 16.0                | 1,900               | 16                 | 12,720                                | 85.7                | 1,800               | 14                 |
| Poland                     | 36,889           | 25,362                                | 16.1                | 34,700              | 136                | 13.0                | 3,100               | 12                 | 27,573                                | 88.2                | 5,400               | 19                 |
| Portugal                   | 9,848            | 7,041                                 | 9.3                 | 3,600               | 51                 | 11.7                | 710                 | 10                 | 7,556                                 | 88.4                | 1,400               | 18                 |
| Romania                    | 19,042           | 13,001                                | 14.3                | 17,900              | 138                | 16.7                | 3,600               | 27                 | 13,960                                | 85.3                | 2,800               | 19                 |
| Slovakia                   | 5,435            | 3,695                                 | 13.9                | 3,700               | 100                | 11.8                | 260                 | 7                  | 4,026                                 | 93.9                | 700                 | 17                 |
| Slovenia                   | 2,107            | 1,481                                 | 13.5                | 1,300               | 86                 | 12.5                | 140                 | 9                  | 1,592                                 | 99.9                | 340                 | 21                 |
| Spain                      | 45,261           | 31,845                                | 10.9                | 18,500              | 58                 | 15.9                | 5,500               | 17                 | 34,245                                | 92.5                | 6,100               | 17                 |
| Sweden                     | 10,452           | 6,752                                 | 5.2                 | 480                 | 7                  | 6.8                 | 60                  | -                  | 7,444                                 | 78.4                | 740                 | 9                  |
|                            |                  |                                       |                     |                     |                    |                     |                     |                    |                                       |                     |                     |                    |
| Albania                    | 2,794            | 1,722                                 | 15.8                | 3,500               | 200                | 12.4                | 310                 | 17                 | 1,951                                 | 95.1                | 680                 | 34                 |
| Andorra                    | 80               | 52                                    | 7.8                 | 20                  | 28                 | 14.3                | 10                  | 11                 | 56                                    | 82.7                | 10                  | 10                 |
| Bosnia and Herzegovina     | 3,464            | 2,404                                 | 21.1                | 6,200               | 258                | 12.9                | 460                 | 18                 | 2,609                                 | 98.4                | 920                 | 35                 |
| Iceland                    | 376              | 227                                   | 3.6                 | <5                  | <1                 | 8.4                 | <5                  | <1                 | 258                                   | 78.3                | 20                  | 7                  |
| Kosovo under UNSCR 1244/99 | 1,805            | 933                                   | 16.5                | 2,400               | 254                | 13.6                | 240                 | 25                 | 1,073                                 | 85.7                | 320                 | 29                 |
| Liechtenstein              | 39               | 27                                    | 8.4                 | 10                  | 25                 | 13.6                | <5                  | 7                  | 30                                    | 98.5                | <5                  | 13                 |
| Monaco                     | 38               | 25                                    | 10.2                | 10                  | 52                 | 17.3                | <5                  | 16                 | 27                                    | 106.5               | 10                  | 22                 |
| Montenegro                 | 618              | 391                                   | 15.1                | 710                 | 182                | 11.3                | 50                  | 13                 | 430                                   | 92.7                | 140                 | 32                 |
| North Macedonia            | 1,837            | 1,197                                 | 22.8                | 3,600               | 303                | 15.7                | 330                 | 27                 | 1,313                                 | 76.7                | 210                 | 16                 |
| Norway                     | 5,425            | 3,489                                 | 5.4                 | 350                 | 9                  | 7.7                 | 80                  | 2                  | 3,856                                 | 79.2                | 380                 | 9                  |
| San Marino                 | 34               | 24                                    | 13.8                | 30                  | 102                | 12.8                | <5                  | 8                  | 26                                    | 97.3                | 10                  | 19                 |
| Serbia                     | 6,797            | 4,717                                 | 19.1                | 10,800              | 228                | 16.2                | 1,400               | 30                 | 5,119                                 | 94.2                | 1,500               | 30                 |
| Switzerland                | 8,739            | 5,968                                 | 8.6                 | 1,900               | 31                 | 14.1                | 610                 | 10                 | 6,524                                 | 100.2               | 1,200               | 19                 |
| Türkiye (TR)               | 84,668           | 46,247                                | -                   | -                   | -                  | 25.1                | 13,900              | 30                 | 52,723                                | 84.8                | 5,800               | 10                 |
|                            |                  |                                       |                     |                     |                    |                     |                     |                    |                                       |                     |                     |                    |
| EU27                       | 441,561          | 303,974                               | 11.4                | 239,000             | 78                 | 14.1                | 48,000              | 15                 | 328,995                               | 92.2                | 70,000              | 21                 |
| EEA32 (no TR)              | 456,140          | 313,686                               | 11.2                | 241,000             | 76                 | -                   | -                   | -                  | -                                     | -                   | -                   | -                  |
| EEA32                      | 540,809          | 359,933                               | -                   | -                   | -                  | 15.8                | 63,000              | 17                 | 392,386                               | 91.0                | 78,000              | 19                 |
| All countries (no TR)      | 473,606          | 325,150                               | 11.5                | 269,000             | 82                 | -                   | -                   | -                  | -                                     | -                   | -                   | -                  |
| All countries              | 558,275          | 371,398                               | -                   | -                   | -                  | 15.7                | 66,000              | 17                 | 404,992                               | 91.1                | 81,000              | 20                 |

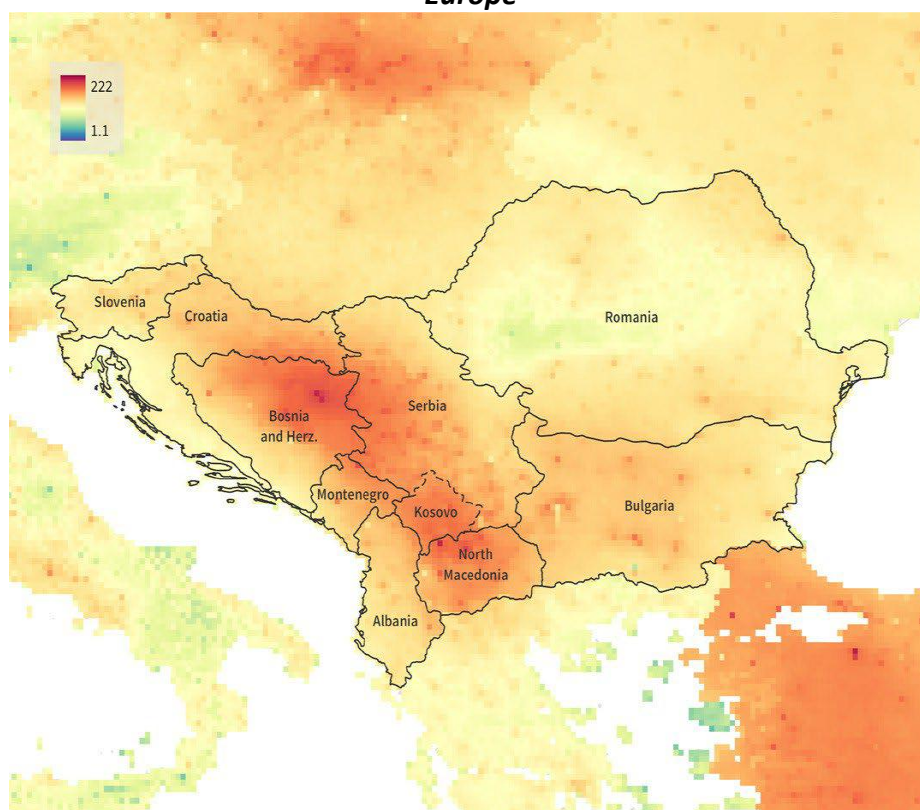
Source: <https://www.eea.europa.eu/en/analysis/publications/harm-to-human-health-from-air-pollution-2024/table-1>

## ***Air Quality Management Strategy for the period 2026–2029***

According to an assessment by the Joint Research Centre of the European Commission (JRC)<sup>10</sup>, approximately 7,000 premature deaths caused by air pollution in more than 30 cities in the Western Balkans result in costs of around EUR 300 million annually.

According to data from the *State of Global Air* (SOGA) report<sup>11</sup>, 71% of the population in South-East Europe lives in areas where concentrations of particulate matter PM<sub>2.5</sub> (which contribute most to the adverse health impacts of air pollution) exceed the currently applicable EU limit value of 25 µg/m<sup>3</sup>. The average rate of premature deaths attributable to air pollution is four times higher than in Western Europe.

***Illustration 3: Population-weighted average annual exposure to PM<sub>2.5</sub> (2019) – South-East Europe***



Source of data: Air Quality Trends and Health Impacts in South-East Europe – State of Global Air<sup>12</sup>

<sup>10</sup> European Commission, Joint Research Centre, Status of Environment and Climate in the Western Balkans, Publications Office of the European Union, Luxembourg, 2024, <https://data.europa.eu/doi/10.2760/1865356>

<sup>11</sup> State of Global Air, <https://www.stateofglobalair.org/resources/report/trends-air-quality-and-health-southeast-europe>

<sup>12</sup> Health Effects Institute. 2022. Trends in Air Quality and Health in Southeast Europe: A State of Global Air Special Report

## **Gender and social dimension of the impact of air pollution**

Available analyses indicate that the level and frequency of exposure to air pollution are not the same for all population groups. Biological, social, occupational and economic factors may influence different exposure and different health consequences for women and men, as well as for particularly vulnerable groups. Energy poverty and the use of solid fuels in households are especially important because they are linked to greater exposure to pollution indoors and outdoors.

According to the study on gender-aware air protection policy, Montenegro lacks records and research that would enable a reliable analysis of the links between air pollution and sex, gender, health outcomes, territorial differences and socio-economic status. Therefore, the Strategy introduces an obligation that, where possible, data on beneficiaries of measures, participants in campaigns, energy poverty and health indicators be collected and analysed disaggregated by sex, age, territory and other relevant characteristics.

## **1.5 ANALYSIS OF PREVIOUS STRATEGIC DOCUMENTS**

The first strategic document in the field of air quality in Montenegro, the National Air Quality Management Strategy<sup>13</sup>, was adopted in 2013, with an action plan for the period 2013–2016. At the time of its adoption, at the very beginning of Montenegro's European path (negotiations on EU membership were opened in 2012), the Strategy represented an important step forward towards alignment with European standards.

The Strategy encompasses the legal framework, institutional structure, analysis of pollutants, sources and critical areas, as well as a detailed four-year action plan. The document realistically emphasises industry, energy, transport and household heating as the main sources of pollution; however, many measures were formulated in general terms and without clearly defined mechanisms for implementation in practice. Although the Strategy recognises the lack of financial resources as the greatest constraint, many of the proposed measures required significant investment.

During this period, air protection policy was based on a limited and fragmented set of data from the previous period, as well as data from the initial configuration of the national air quality monitoring network established in 2009.

For the assessment of air quality, data from 2010 were used, obtained through monitoring within the national network, since this was the first year in which continuous automatic measurements were carried out throughout the entire year (from January to December). In 2010, the monitoring network consisted of four automatic fixed monitoring stations, distributed across the territory of the country in accordance with EU legislative requirements. Monitoring sites were located in

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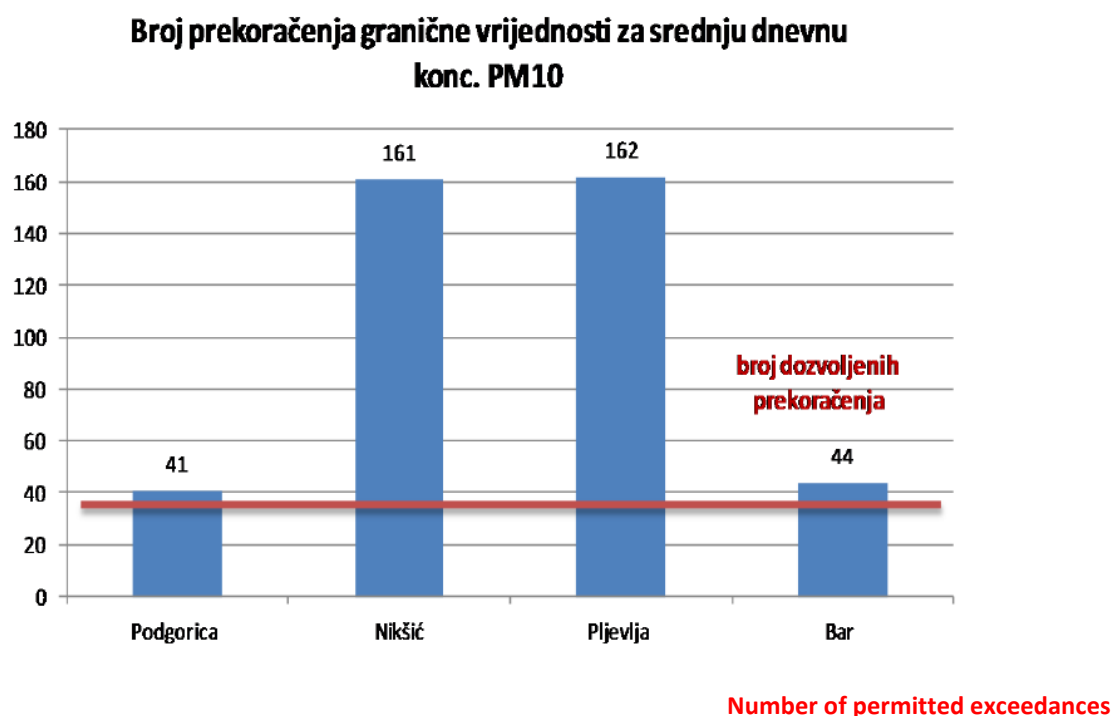
<sup>13</sup> National Air Quality Management Strategy with an Action Plan for the period 2013–2016  
<https://www.gov.me/dokumenta/5278544d-536e-49c6-ad06-a0476ee715ac>

Podgorica, Nikšić and Bar in the southern critical zone, while the monitoring site in Pljevlja was located in the northern critical zone. All monitoring sites were classified in the report of the Centre for Ecotoxicological Research as traffic-influenced monitoring sites. During 2010, measurements of particulate matter PM<sub>2.5</sub> were not conducted; however, the recorded concentrations and number of exceedances of limit values for particulate matter PM<sub>10</sub>, presented in Figure 9, indicate significantly higher levels of air pollution during that period compared with the present situation.

In 2013, the integration of air protection policy into other sectoral policies was still in its infancy, and a key shortcoming of the Strategy was an unsustainable financial plan. Although it required relatively modest financial resources of €187,000 for the implementation of 54 defined measures in the four-year Action Plan, this must be viewed in relation to present-day circumstances.

The main value of this document lies in the clearly defined direction towards alignment with EU standards and the mapping of problems in this field.

**Figure 9: Number of exceedances of the limit value for the daily mean concentration of particulate matter PM<sub>10</sub> during 2010**



Source of data: National Air Quality Management Strategy with an Action Plan for the period 2013–2016

Following the first implementation period, the Strategy was supplemented by an additional four-year action plan for the period 2017–2020. The final report on the implementation of the Strategy

from 2020<sup>14</sup> states that the level of implementation in the first four-year period amounted to 77%, and 72% in the second period. The measures implemented relate primarily to improvements in the legal and institutional framework, while the implementation of concrete measures aimed at reducing pollution was limited. During the reporting period, near-complete alignment with EU legislation in this area was achieved (91.6%), and the number of automatic stations in the national air quality monitoring network increased to 10. Real-time air quality reporting was established and can be monitored via the Environmental Protection Agency portal, alongside pollen monitoring and reporting in accordance with the European Air Quality Index, accompanied by advice from the Institute of Public Health in cases of increased air pollution. However, this period was also characterised by a six-year gap (2013–2020) in reporting on air pollutant emissions, i.e. in the preparation of emissions inventories, which indicates insufficient institutional capacity in this segment.

In 2021, the State Audit Institution published the Report on the Efficiency of the Mechanism for Regulation, Monitoring and Reporting on Air Quality in Montenegro<sup>15</sup>, which independently summarises the results achieved in this field up to 2020. The report highlights weaknesses in implementation, coordination and control mechanisms, as well as a lack of qualified personnel and technical equipment. In addition to the improvements identified in this area, the State Audit Institution pointed to the need to adopt a new air quality management strategy, as well as air quality plans at the local level, the continuous need for regular maintenance and calibration of monitoring stations, the obligation to establish a central polluters cadastre and local air polluters registers, and the need for adequate records of decisions and amounts of collected environmental charges.

A draft new Air Quality Management Strategy for the period 2019–2029 was prepared and updated several times in recent years but was never adopted due to the inability to align it with the official energy policy defined through the National Energy and Climate Plan (NECP)<sup>16</sup>, which had not yet been adopted at the time of preparation of this Strategy. In addition to the main document, a set of accompanying thematic documents was prepared during the period 2020–2025 (on mainstreaming air protection policy, the burning of agricultural waste, the possibilities of using indicators related to the health impacts of air pollution, etc.), which were used in the preparation of this Strategy.

Air quality plans were adopted at the local level in Pljevlja (2013), Nikšić (2014) and Podgorica (2015). All three plans aimed to reduce concentrations of particulate matter PM<sub>10</sub>. For the Municipality of Pljevlja, a Short-term Action Plan in the event of exceedances or the risk of

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<sup>14</sup> *Final Report on the Implementation of the National Air Quality Management Strategy for the period 2017–2020, with the Report on the Implementation of the 2020 Action Plan, March 2021*

<https://wapi.gov.me/download/1566f0ac-2863-4a2c-aaab-5d05c18ab47d?version=1.0>

<sup>15</sup> *Report on the Efficiency of the Mechanism for Regulation, Monitoring and Reporting on Air Quality in Montenegro*  
<https://dri.co.me/doc/Izvje%C5%A1taj%20o%20reviziji%20uspjeha%20Efikasnost%20mehanizma%20regulacije,%20Opra%C4%87enja%20i%20izvje%C5%A1tavanja%20o%20kvalitetu%20vazduha%20u%20Crnoj%20Gori.pdf>

<sup>16</sup> *National Energy and Climate Plan of Montenegro*

<https://wapi.gov.me/download/4c1901cb-fbe3-480d-89c7-27817a25343e?version=1.0>

exceedance of the sulphur dioxide alert threshold was adopted in 2015<sup>17</sup>. To date, the objectives of these plans have been achieved, except in Pljevlja, where exceedances of particulate matter are still recorded and where, in December 2025, the sulphur dioxide alert threshold was exceeded. The Municipality of Pljevlja updated its air quality plan within the Local Environmental Protection Plan for the period 2022–2026<sup>18</sup>.

Air quality plans for all three zones form an integral part of this Strategy and, in accordance with the new EU air quality legislation (analysis given in the following subchapter), it will be necessary to develop roadmaps for achieving the new, more stringent limit values for concentrations of air pollutants.

## 1.6 ALIGNMENT WITH EU LEGISLATION

### National legislative framework

The legislative basis for adopting this Strategy is contained in the Law on Air Protection, which prescribes the obligation to adopt a national strategy for a four-year period in order to preserve air quality and reduce harmful consequences for human health and the environment. The Strategy also relies on regulations governing environmental protection, climate change, industrial emissions, waste management, energy, transport, spatial planning, nature protection, inspection supervision and public health.

The Law on Air Protection and the bylaws regulating air quality limit and target values, air quality monitoring, exchange of information and reporting, air quality plans, maximum national emissions and obligations for emission reporting are particularly relevant for the implementation of the Strategy. This framework is supplemented by new legislative solutions in the process of alignment with the revised law of the European Union, especially in the area of stricter air quality standards, the public's right to information and mechanisms for compensation for damage to human health.

The national legislative framework is listed at this point as the basis for further alignment with the EU acquis, and not only as the general context of European integration.

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<sup>17</sup> Short-term Action Plan for the Municipality of Pljevlja in the event of exceedance or risk of exceedance of the sulphur dioxide (SO<sub>2</sub>) alert threshold

<https://epa.org.me/wp-content/uploads/2017/12/Kratkoroni-akcioni-plan-za-Optinu-Pljevlja.pdf>

<sup>18</sup> Local Environmental Action Plan (LEAP) Pljevlja

<https://pljevlja.me/wp-content/uploads/2022/11/LEAP-Pljevlja-web.pdf>

A key development in European legislation in this field is the new Air Quality Directive (Directive (EU) 2024/2881)<sup>19</sup>, which is the main instrument of the Zero Pollution package within the European Green Deal, created with the objective of reducing air pollution by 2050 to levels that no longer pose a threat to human health and ecosystems, and with the objective of reducing premature deaths caused by pollution by 55% by 2030. This revised Directive, adopted in 2024, introduces stricter standards for a range of pollutants that Member States are required to achieve by no later than 2030. The Ministry of Ecology, Sustainable Development and Northern Development has already initiated the preparation of a plan for the implementation of this Directive; therefore, this strategic document addresses it to the extent that it directly affects the elements of this Strategy, principally the air quality plans.

In addition, Montenegrin legislation in the field of air quality is still not aligned with the new National Emission reduction Commitments Directive<sup>20</sup>, which constitutes a significant part of the final benchmark for the air quality area under negotiating Chapter 27. In addition to transposing the requirements of this Directive — which requires amendments to the Law on Air Protection and the existing Regulation on national emission ceilings — the final benchmark requires the adoption of the National Air Pollution Control Programme, which forms an integral part of this Strategy and is aligned with the common format established by Commission Implementing Decision (EU) 2018/1522<sup>21</sup>.

With regard to air quality plans, Directive 2024/2881 introduces several innovations

- ✓ The adoption of air quality plans is mandatory for each zone in which any limit or target value has been exceeded, within two years of the exceedance, as required under the previous Directive; Though air quality plans remain subject to the principle that exceedance periods shall be kept as short as possible, the new requirement is that limit values must be achieved within four years;
- ✓ If, in the third year of implementation of the plan, the limit values have not been achieved, the plan must be updated;
- ✓ Every five years, the possibilities for reducing ground-level ozone concentrations must be reviewed. Air quality plans and roadmaps for reducing ground-level ozone concentrations are prepared at the level of the territorial unit (NUTS), which in the case of Montenegro means at the level of the entire territory. The preparation of these plans is mandatory under the new Directive, unless it can be demonstrated that reductions cannot be

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<sup>19</sup> Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe (recast)

<https://eur-lex.europa.eu/eli/dir/2024/2881/oj/eng>

<sup>20</sup> Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC

<https://eur-lex.europa.eu/eli/dir/2016/2284/oj/eng>

<sup>21</sup> Consolidated text: Commission Implementing Decision (EU) 2018/1522 of 11 October 2018 laying down a common format for national air pollution control programmes under Directive (EU) 2016/2284 of the European Parliament and of the Council on the reduction of national emissions of certain atmospheric pollutants

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02018D1522-20181012>

achieved due to geographical or climatic conditions or that applicable measures would entail disproportionately high costs;

- ✓ The preparation of air quality plans is also mandatory in cases of exceedance of the average population exposure to pollution, calculated at the territorial level;
- ✓ Where limit values for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, benzene or benzo(a)pyrene cannot be achieved by 2030 in a given zone, the deadline may be extended under certain conditions, with the obligation to prepare a roadmap for achieving compliance;
- ✓ The content of air quality plans has also been significantly supplemented and amended.

It is important to emphasize that Montenegro is a signatory to the **Green Agenda for the Western Balkans**, adopted at the Sofia Summit in 2020, which represents a regional framework for implementing the objectives of the European Green Deal. The Green Agenda covers five key areas: decarbonisation, circular economy, pollution reduction, biodiversity protection, and sustainable food systems and rural development.

The activities envisaged under this Strategy contribute to the implementation of the objectives of the Green Agenda, particularly in the areas related to air pollution reduction and the energy transition.

#### **Additional relevant EU, international and national strategic frameworks**

In addition to the acts and strategies already mentioned in this document, the implementation of the Strategy should take into account the following EU and international strategic frameworks, particularly because of their links to the objectives of zero pollution, climate neutrality, emission reduction, sustainable mobility, health protection and the management of sectoral policies after Montenegro's accession to the European Union:

- 1) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Pathway to a Healthy Planet for All - EU Action Plan: "Towards Zero Pollution for Air, Water and Soil", COM(2021) 400 final, CELEX: 52021DC0400; as well as Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Mid-term review of the Zero Pollution Action Plan "Delivering Green Agenda for the Western Balkans (GAWB) Action Plan 2021-2030;
- 2) Strategy for long-term EU greenhouse gas emissions reductions (2015-2050);
- 3) Paris Agreement, as the international climate framework for keeping the increase in global temperature well below 2°C and pursuing efforts to limit it to 1.5°C;
- 4) Nationally Determined Contributions (NDCs) under the Paris Agreement / UNFCCC;
- 5) Aviation Research and Innovation Strategy (SESAR JU);
- 6) EU Strategy to reduce methane emissions;
- 7) EU Strategy for Sustainable Development in Transport (White Paper 2001, updated 2006);
- 8) A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy;
- 9) Chemicals Strategy for Sustainability - Towards a Toxic-Free Environment;

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- 10) Long-term Low Greenhouse Gas Emission Development Strategy of the EU and its Member States (LT-LEDs);
- 11) Adaptation to Climate Change - Blueprint for a new, more ambitious EU strategy;
- 12) Securing our future: Europe's 2040 climate target and path to climate neutrality by 2050 - building a sustainable, just and prosperous society;
- 13) 'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality;
- 14) 2040 Climate Target Plan;
- 15) Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change;
- 16) Communication Managing climate risks - protecting people and prosperity;
- 17) Sustainable Mobility for Europe: safe, connected and clean;
- 18) European Space Strategy / A Space Strategy for Europe;
- 19) Industrial Carbon Management Strategy;
- 20) The Sustainable Carbon Cycles Communication;
- 21) A Roadmap for moving to a competitive low carbon economy in 2050, COM(2011) 112 final;
- 22) A Strategic Framework for a Competitive and Sustainable EU Bioeconomy;
- 23) EU Bioeconomy Strategy 2030;
- 24) Innovating for Sustainable Growth: A Bioeconomy for Europe;
- 25) A Clean Planet for all - A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy;
- 26) Going Climate-Neutral by 2050: A Strategic Long-Term Vision for a Prosperous, Modern, Competitive and Climate-Neutral EU Economy;
- 27) Occupational Safety and Health Strategy;
- 28) The EU strategic framework on health and safety at work 2021-2027;
- 29) EU space strategy for security and defence;
- 30) A European Strategy for Low-Emission Mobility;
- 31) EU Action Plan on Drone and Counter-Drone Security;
- 32) The European Drone Strategy 2.0.

Within the national strategic framework, the Strategy is also linked to the following documents relevant to development directions in the fields of environment, climate change, energy, waste, water, forestry and biodiversity:

- 1) Updated Nationally Determined Contribution of Montenegro for 2030 and 2035;
- 2) Montenegro National Adaptation Plan for Climate Change 2025-2035, with Action Plan 2025-2027;
- 3) State Waste Management Plan 2025-2029;
- 4) Municipal Wastewater Management Plan until 2030;
- 5) National Action Plan against Illegal Killing, Taking and Trade of Migratory Birds 2025-2030;
- 6) Programme for Encouraging Energy Efficiency Innovations in Industry;
- 7) National Forestry Policy of Montenegro.

The link with the above documents is particularly important for activities that are financed or implemented through other sectoral policies. Therefore, in the Action Plan and the Programme of Measures, where an activity is taken over from or directly linked to another strategic document, the policy source and the funding source must be stated in order to avoid duplication of obligations and budget expenditures.

### **Alignment with overarching and sectoral strategic documents**

The Strategy is aligned with the National Sustainable Development Strategy until 2030, particularly with the thematic area relating to the preservation of natural capital and the objective of halting the degradation of renewable natural resources, including air, water, soil and biodiversity. The Sustainable Development Goals SDG 3.9, which relates to reducing illness and mortality caused by air, water and soil pollution, and SDG 11.6, which relates to reducing the adverse per capita environmental impact of cities, including air quality, are particularly relevant.

The Strategy directly contributes to achieving the NSDS strategic objective related to halting the degradation of natural capital through the reduction of air pollution, improvement of the population's quality of life and preservation of ecosystems.

The Strategy contributes to the implementation of the Government's Medium-Term Work Programme 2024-2027 and the Government Work Programme for 2026 in the area of meeting the benchmarks under Chapter 27 - Environment and Climate Change, air pollution control, remediation of environmental burdens and improvement of the monitoring and reporting system. In relation to Montenegro's Reform Agenda, the Strategy is linked to measures for energy efficiency, energy poverty, the just transition of the Pljevlja coal region and the decarbonisation of the energy sector.

With regard to the National Energy and Climate Plan, the Strategy takes over and uses only those measures that have a direct effect on reducing emissions of pollutants or improving air quality. When a measure is taken from the NECP, the Reform Agenda, Industrial Policy or another sectoral document, the Action Plan specifically notes that financing for that measure is provided through the source from that document and that it does not represent an additional financing package for the Air Quality Management Strategy.

The Strategy is also horizontally linked to the Economic Reform Programme, the Smart Specialisation Strategy, Industrial Policy, and strategies in the fields of energy, transport, forestry, agriculture, waste management, nature protection and public health. This link is important in order to avoid overlaps in financing and obligations, but also to monitor the cumulative effects of sectoral measures on air quality.

In addition, measures for energy efficiency, decarbonisation, the development of renewable energy sources and the improvement of air quality contribute to achieving the reform priorities defined in the Economic Reform Programme by increasing competitiveness, supporting the green transition and reducing health costs caused by air pollution.

Alignment with international obligations is further considered through the Convention on Long-range Transboundary Air Pollution, the Gothenburg Protocol, the Green Agenda for the Western Balkans, the LIFE Programme, the global biodiversity framework, relevant nature protection conventions and standards on the right to a clean, healthy and sustainable environment.

In addition, the preparation of the draft Air Quality Management Strategy for the period 2026-2029 is envisaged by the Government of Montenegro Work Programme, the Programme of Accession of Montenegro to the European Union 2024-2027 within negotiating Chapter 27 - Environment and Climate Change, the Action Plan for meeting the closing benchmarks in Chapter 27, as well as the National Energy and Climate Plan of Montenegro. This confirms the Strategy as a document that links national planning, European integration and sectoral policies with the direct objective of improving air quality.

## 1.7 STAKEHOLDER MAPPING

The Air Quality Management Strategy encompasses a broad range of actors, as air pollution originates from multiple sectors, affects the entire population, and requires both horizontal and vertical institutional coordination. The key stakeholder groups, their interests and influence, as well as their roles in the implementation of the Strategy, are outlined below.

The Ministry of Ecology, Sustainable Development and Development of the North has the central coordination role in creating air protection policy, drafting regulations, supervising the implementation of measures and fulfilling obligations towards the European Union. The Environmental Protection Agency has a key technical and analytical role through air quality monitoring, maintenance of the monitoring station network and reporting to the public, the European Union and international bodies.

The Ministry of Energy and Mining (MEIR) has a strategically important role through the implementation of energy policies, the National Energy and Climate Plan, measures related to the operation of TPP Pljevlja, renewable energy sources, energy efficiency and the energy transition. The Ministry of Transport contributes to reducing transport emissions through public transport policies, sustainable mobility and vehicle standards, while the Ministry of Finance provides budgetary support and shapes fiscal policies for the implementation of measures.

The Ministry of European Affairs contributes to fulfilling obligations under negotiating Chapter 27, while local self-government units have a key operational role in preparing and implementing local air quality plans, heating, transport and urban planning measures, and local public information. The Union of Municipalities of Montenegro supports coordination of local policies and exchange of good practices.

EPCG, TPP Pljevlja, the Pljevlja Coal Mine and other business and industrial entities have an important role in reducing emissions and applying emission standards. The Eco Fund is a key

## *Air Quality Management Strategy for the period 2026–2029*

financial mechanism for supporting energy efficiency and emission reduction, while the Institute of Public Health and health institutions monitor the health consequences of pollution and participate in communicating risks to the public.

Civil society, non-governmental organizations, academia, professional associations and the media contribute to social oversight, advocacy, expert input, public information and awareness-raising. Citizens are both the most exposed group and key actors in behaviour change, particularly in the areas of household heating, energy efficiency, mobility and participation in public consultations. International organizations and donors provide technical and financial support for strengthening institutional capacities and implementing measures

| Stakeholder                                                                  | Roles / responsibilities                                                                                                                                                                                                                                                            | Interests and influence                                                                                                       |
|------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Ministry of Ecology, Sustainable Development and Northern Development</b> | Coordination of Strategy implementation, air protection policy, drafting legislation, supervision of measure implementation, obligations towards the EU                                                                                                                             | High influence; interest in improving alignment with EU policies, reducing pollution and strengthening institutional capacity |
| <b>Environmental Protection Agency</b>                                       | Air quality monitoring, maintenance of monitoring network, reporting to the public and in line with international obligations.                                                                                                                                                      | Crucial technical and analytical actor                                                                                        |
| <b>Ministry of Energy and Mining</b>                                         | Energy policy, implementation of the NECP, energy-related measures, Pljevlja TPP, renewable energy and energy transition                                                                                                                                                            | High influence, key sector                                                                                                    |
| <b>Ministry of Transport</b>                                                 | Policies to reduce transport emissions, public transport, vehicle standards                                                                                                                                                                                                         | Medium to high influence                                                                                                      |
| <b>Ministry of Finance</b>                                                   | Budget support, fiscal policies, support for financing measures                                                                                                                                                                                                                     | High influence                                                                                                                |
| <b>Ministry of European Affairs</b>                                          | Coordination of EU accession process and implementation of obligations under Chapter 27                                                                                                                                                                                             | Strategic influence                                                                                                           |
| <b>Ministry of Agriculture, Forestry and Water Management</b>                | Policies in the fields of agriculture, forestry, and land management; measures to reduce emissions from agriculture (particularly ammonia – NH <sub>3</sub> ); sustainable management of forest ecosystems; promotion of sustainable practices in agriculture and rural development | Medium to high influence; an important sector for reducing emissions from agriculture and preserving ecosystems               |
| <b>Local self-governments</b>                                                | Preparation and implementation of local air quality plans, local heating and transport measures                                                                                                                                                                                     | Key implementation role                                                                                                       |

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|                                                           |                                                              |                                    |
|-----------------------------------------------------------|--------------------------------------------------------------|------------------------------------|
| <b>Union of Municipalities of Montenegro</b>              | Coordination of local policies and exchange of practices     | Support to implementation          |
| <b>EPCG and the energy sector</b>                         | Implementation of energy measures, Pljevlja TPP, investments | Very high influence                |
| <b>Industrial operators</b>                               | Compliance with emission standards                           | Potential resistance / costs       |
| <b>Eco Fund</b>                                           | Financing energy efficiency and emission reduction measures  | Key financial mechanism            |
| <b>Institute of Public Health and health institutions</b> | Monitoring health impacts, communication with the public     | High public health significance    |
| <b>Civil society and non-governmental organisations</b>   | Oversight, advocacy, awareness-raising                       | Important support for transparency |
| <b>Media</b>                                              | Public information                                           | Shape public perception            |
| <b>Citizens</b>                                           | End users and most exposed group                             | Success depends on public support  |
| <b>International organisations and donors</b>             | Technical support and financing                              | Support for systemic strengthening |

### 1.8 RESOURCE ANALYSIS

The effective implementation of the Strategy depends on ensuring adequate institutional, technical, financial and human resources. The analysis identifies the following key elements:

#### ✓ **Institutional resources**

A clearly defined institutional framework exists at the national level; however:

- insufficient coordination between sectors;
- limited capacities at the local level;
- the need to strengthen implementation and enforcement
- Technical resources

The national network of monitoring stations has been significantly improved in recent years and covers three air quality zones. Nevertheless:

- continuous maintenance and calibration are required;
- further improvement of the QA/QC system is necessary;
- emissions inventories and projections need to be further enhanced.

#### ✓ **Human resources**

- a limited number of experts;
- shortage of staff at the local level;
- the need for training and specialisation (inventories, modelling, public policy).

✓ **Financial resources**

- State budget;
- Eco Fund;
- International funds (EU, bilateral support, EBRD, EIB, KfW, GEF, GCF, WBIF);
- Private sector.

Conclusion: Resources exist, but they are insufficient for full implementation without additional investment and capacity strengthening.

Implementation of the Strategy does not require securing additional funds from the budget of Montenegro for 2026, because the key measures have already been planned through existing strategic and planning documents, primarily through the NECP, the Reform Agenda, investment plans of energy companies and programmes of international financial institutions and funds, including IPA support.

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The most significant funds relate to the energy transition, infrastructure projects and incentives for citizens: environmental reconstruction of TPP Pljevlja - EUR 54.5 million; energy efficiency programme in public buildings - EUR 80 million; development of the district heating system in the municipality of Pljevlja - EUR 23 million; incentives for citizens for energy efficiency measures - EUR 8.8 million.

Measures relating to the legal framework, monitoring and reporting are planned through the IPA technical assistance project for Chapter 27, including full transposition of Directive (EU) 2016/2284 and Directive (EU) 2024/2881, improvement of the emission inventory, projections and reporting under the CLRTAP/EIONET framework, air quality modelling and monitoring of the impact of pollution on ecosystems.

Funds are provided throughout the entire period 2026-2029, because the measures have different implementation phases. At local level, local self-government units participate through local environmental protection plans, energy efficiency projects in public buildings, coordination of incentives for citizens through the Eco Fund, development of district heating and promotion of e-mobility. The document does not envisage measures that create international financial obligations.

## 1.9 SWOT ANALYSIS

| STRENGTHS                                                                               | WEAKNESSES                                                                                       |
|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Significant improvement in air quality compared with the previous period                | Dominant impact of household heating on PM and BaP concentrations                                |
| Improved monitoring network and real-time public availability of data                   | Limited institutional and technical capacities at national and local levels                      |
| Political commitment and a clear framework within the EU accession process              | Insufficiently effective implementation of measures at the local level                           |
| Developed strategic and regulatory framework and experience from previous strategies    | Historical periods of discontinuity in emissions inventory preparation and systematic monitoring |
| OPPORTUNITIES                                                                           | THREATS                                                                                          |
| New EU Directive 2024/2881 – a clear reform and development framework                   | Socio-economic constraints and energy poverty that may limit the implementation of measures      |
| Implementation of the National Energy and Climate Plan and energy transition measures   | Political and institutional instability                                                          |
| Availability of international funds and donor support                                   | Potential technical failures and operational risks in large installations (e.g. Pljevlja TPP)    |
| Development of district heating systems, energy efficiency and renewable energy sources | Stricter EU obligations after 2030 and possible sanctions in the event of delays                 |

## 2. STRATEGIC AND OPERATIONAL OBJECTIVES

The key strategic objectives of this document are:

**OBJECTIVE 1: IMPROVEMENT OF AIR QUALITY;**

**OBJECTIVE 2: FURTHER IMPROVEMENT OF AIR QUALITY MONITORING AND MANAGEMENT.**

## ***Air Quality Management Strategy for the period 2026–2029***

The primary strategic objective is linked to the EU objectives under the Zero Pollution package, defined as:

- ✓ Improving air quality, thereby achieving a 55% reduction in the number of premature deaths attributable to air pollution;
- ✓ Reducing by 25% the number of ecosystems where air pollution poses a threat to biodiversity.

Objective 1 can be achieved through the following operational objectives:

### ***Objective 1: Improvement of air quality***

1.A – reduction of particulate matter concentrations and benzo(a)pyrene content in the Northern air quality zone;

1.B – reduction of benzo(a)pyrene content in particulate matter in the Central air quality zone;

1.C – reduction of emissions of air pollutants (NO<sub>x</sub>, SO<sub>2</sub>, VOC, NH<sub>3</sub> and PM<sub>2.5</sub>).

In accordance with the projections prepared, the emission reduction targets are:

| Reduction compared with 2005 baseline | SO <sub>2</sub> | NO <sub>x</sub> | VOC  | NH <sub>3</sub> | PM <sub>2.5</sub> |
|---------------------------------------|-----------------|-----------------|------|-----------------|-------------------|
| By 2029                               | –60%            | –25%            | –10% | –25%            | –5%               |
| From 2030                             | –70%            | –55%            | –20% | –30%            | –20%              |

During the assessment of air pollutant emissions, the same statistical basis was used as in the development of the detailed energy model prepared for the purposes of the NECP. The reason for this is the alignment of documents addressing the same areas. The aforementioned energy model was used for those pollutants that directly depend on how energy is consumed.

In addition, within the model used to assess the effects of selected measures on climate change for NECP purposes, the non-energy sector was also considered. This sector is partly relevant for air pollutant assessment (agriculture, forestry), so this segment was also synchronized with the model used for the calculations in this strategy.

These data account for 99% of total air pollutant emissions. The remaining data were collected from statistics provided by the National Statistical Office (Monstat).

The methodology for emission assessment is based on the EMEP/EEA Air Pollutant Emission Inventory Guidebook 2023 – Technical Guidance to Prepare National Emission Inventories. For each sub-sector, Tier 1 emission factors from the tables proposed in the guidebook were

applied, taking into account the type of technology and the main activity indicator affecting emissions of the respective gas.

The development scenarios of the energy sector (projections of energy consumption, energy mix, new generation facilities, and energy efficiency development), as stated above, were fully adopted from the recently approved NECP.

Regarding the effects of measures on reducing pollutant emissions, it should be emphasized that they are a direct consequence of reduced energy consumption, changes in the energy mix (increasing the share of renewable energy sources), as well as technological changes. The effects of technological change are particularly evident in the measure concerning the reconstruction of the Pljevlja Thermal Power Plant. After reconstruction and the introduction of modern desulfurization and denitrification systems, emissions of sulfur oxides and nitrogen oxides are significantly reduced (while prior to reconstruction, it was the dominant emitter of these pollutants).

For this measure, it is assumed that after reconstruction, at least the prescribed limits (BAT technologies) for sulfur oxides and nitrogen oxides will be achieved (as foreseen in the project documentation for the reconstruction and repeatedly stated by the plant operator).

Regarding the definition of emission reduction targets by gases, the limits were selected based on the results of the scenario with additional measures, taking into account the uncertainty of emission calculations under the Tier 1 methodology (10–15%). Therefore, the selected targets are those achievable under the scenario with additional measures. More ambitious targets would require a higher intensity of planned measures, while the current intensity is already very high (particularly in the electrification of transport as one of the most important emission sources), as concluded during the preparation of the NECP document in the field of energy measures.

### ***Objective 2: Further enhancement of air quality monitoring and management***

- 2.A – improving the quality of data on air quality and emissions of air pollutants;
- 2.B – strengthening cooperation among relevant institutions, local self-government units, civil society and the professional community;
- 2.C – further alignment with stricter air quality standards.

The two strategic and six operational objectives established by this strategic document are comprehensive in nature, as they are specifically designed to address all key challenges identified in the field of air quality management. For many of these challenges, there are no simple, short-term or low-cost solutions. It is therefore essential to plan carefully and rationally the timeline of activities for their implementation, as well as to define appropriate indicators capable of demonstrating the effectiveness of the measures undertaken.

## **ELABORATION OF STRATEGIC AND OPERATIONAL OBJECTIVES WITH INDICATORS**

For clearer monitoring of implementation, the operational objectives in this document are marked as 1.A, 1.B, 1.C, 2.A, 2.B and 2.C. Marks 1.A, 1.B and 1.C represent operational objectives under Strategic Objective 1, while marks 2.A, 2.B and 2.C represent operational objectives under Strategic Objective 2. These marks are not activity marks, but marks of operational objectives that should be used consistently in the Action Plan, the Programme of Measures and reporting tables.

### **STRATEGIC OBJECTIVE 1: Improvement of air quality**

This strategic objective is aimed at reducing concentrations of pollutants in zones where exceedances of limit and target values have been recorded, especially suspended particles PM10 and PM2.5 and benzo(a)pyrene, as well as at reducing emissions of key pollutants from energy, household heating, transport, agriculture and waste. The objective represents the medium-term phase of moving closer to EU objectives by 2030 and to the long-term commitment toward zero pollution by 2050.

Strategic objective indicator: Number of air quality zones in which exceedances of limit or target values for PM10, PM2.5 and benzo(a)pyrene are recorded, as well as the degree of reduction of SO<sub>2</sub>, NO<sub>x</sub>, VOC, NH<sub>3</sub> and PM2.5 emissions compared with the base year 2005.

- Baseline value: In 2024, annual mean values of PM10 41.6 µg/m<sup>3</sup>, PM2.5 31.77 µg/m<sup>3</sup> and BaP 5.08 ng/m<sup>3</sup> were recorded in the Northern Zone, while a BaP value of 2.58 ng/m<sup>3</sup> was recorded in the Central Zone; the Southern Zone has no recorded exceedances. Emissions of pollutants still require additional measures in order to meet reduction obligations.
- Interim value: By the end of 2027, a trend of reducing PM10, PM2.5 and BaP concentrations in zones with exceedances has been established, implementation of key measures from the NECP, air quality plans and the Air Pollution Control Measures Programme has begun, with annual reporting on emissions and air quality.
- Target value: By the end of 2029, a measurable reduction in PM10, PM2.5 and BaP concentrations in the Northern and Central Zones has been achieved, good air quality in the Southern Zone has been preserved, and emission reduction obligations by 2029 have been met or significantly approached: SO<sub>2</sub> -60%, NO<sub>x</sub> -25%, VOC -10%, NH<sub>3</sub> -25% and PM2.5 -5% compared with 2005.

Key activities for achieving the strategic objective: implementation of measures from the air quality plans for the Northern and Central Zones, preventive measures for the Southern Zone, energy efficiency measures and reduction of energy poverty, reduction of emissions from TPP Pljevlja and other large sources, replacement of individual heating appliances and cleaner heating sources, measures in transport, agriculture and waste management.

Challenges in achieving the strategic objective: dependence on the dynamics of energy projects and investments, the seasonal nature of pollution from household heating, energy poverty,

limited capacities of local self-governments, the need for stable financing and the risk of delays in implementing measures from other sectoral policies.

**OPERATIONAL OBJECTIVE 1.A: Reduction of concentrations of suspended particles and benzo(a)pyrene content in the Northern Air Quality Zone**

The Northern Zone is the priority zone for implementing measures, because it records the most pronounced exceedances of PM<sub>10</sub>, PM<sub>2.5</sub> and benzo(a)pyrene concentrations, particularly during the heating season. Measures are aimed at reducing emissions from household heating, energy and local sources, with particular targeting of Pljevlja and Bijelo Polje.

Operational objective indicator: Annual mean concentrations of PM<sub>10</sub>, PM<sub>2.5</sub> and BaP in the Northern Air Quality Zone, number of days with exceedances of the daily PM<sub>10</sub> value and implementation of measures from the air quality plan for the Northern Zone.

- Baseline value: In 2024: PM<sub>10</sub> 41.6 µg/m<sup>3</sup>, PM<sub>2.5</sub> 31.77 µg/m<sup>3</sup> and BaP 5.08 ng/m<sup>3</sup> in the Northern Zone; exceedances were recorded at the Pljevlja and Bijelo Polje monitoring sites.
- Interim value: By the end of 2027, implementation of priority measures for household heating, district heating, energy efficiency and reduction of emissions from large sources has begun, with annual monitoring of the concentration trend.
- Target value: By the end of 2029, a measurable reduction in PM<sub>10</sub>, PM<sub>2.5</sub> and BaP concentrations and a reduced number of days with exceedances in the Northern Zone have been achieved, with a basis prepared for meeting stricter standards by 2030.

Key activities contributing to achievement of the operational objective: district heating in Pljevlja, energy efficiency in buildings, reduction of energy poverty, replacement of heating appliances and fuels, environmental reconstruction of TPP Pljevlja, local measures to reduce pollution and better information for citizens.

Challenges in achieving the operational objective: high investment costs, energy poverty, seasonal dependence on solid fuels, the need for coordination among several institutions and local self-governments and the risk of delays in capital projects.

**OPERATIONAL OBJECTIVE 1.B: Reduction of benzo(a)pyrene content in suspended particles in the Central Air Quality Zone**

The Central Zone records exceedances of the target value for benzo(a)pyrene, primarily due to the combustion of solid fuels in individual heating appliances during the winter period. The focus is on reducing the population's exposure to carcinogenic PAH compounds, particularly in the urban areas of Podgorica and Nikšić.

Operational objective indicator: Annual mean value of benzo(a)pyrene content in PM<sub>10</sub> particles in the Central Zone and number of implemented measures that reduce emissions from household heating.

- Baseline value: In 2024, the BaP value in the Central Zone was 2.58 ng/m<sup>3</sup>, which is above the target value of 1 ng/m<sup>3</sup>.

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- Interim value: By the end of 2027, priority measures for energy efficiency, reduction of energy poverty and information for households using solid fuels have been implemented.
- Target value: By the end of 2029, a downward trend in BaP in the Central Zone has been achieved and the target value of 1 ng/m<sup>3</sup> has been approached significantly.

Key activities contributing to achievement of the operational objective: energy efficiency programmes for households, financial incentives for cleaner heating sources, information for citizens, local measures and monitoring of BaP content in PM particles.

Challenges in achieving the operational objective: limited household purchasing power, lack of precise data on the type of fuel and heating devices, the need to connect social and energy policies and the need for continuous monitoring.

### **OPERATIONAL OBJECTIVE 1.C: Reduction of emissions of pollutants (NO<sub>x</sub>, SO<sub>2</sub>, VOC, NH<sub>3</sub> and PM<sub>2.5</sub>)**

This operational objective covers the national level and relates to reducing emissions from key sectors: energy production, transport, households, agriculture and waste. Achievement of the objective is a precondition for fulfilling obligations under the NEC framework and for reducing pressure on all air quality zones.

Operational objective indicator: Percentage reduction of national SO<sub>2</sub>, NO<sub>x</sub>, VOC, NH<sub>3</sub> and PM<sub>2.5</sub> emissions compared with the base year 2005, in accordance with projections i obavezama za period by 2029.

- Baseline value: Emissions in the base year 2005 and data from the national emission inventory constitute the basis for monitoring; the document establishes reduction obligations by 2029.
- Interim value: By the end of 2027, implementation of all key measures with the greatest effect on emissions has begun, especially the reconstruction of TPP Pljevlja, RES measures, energy efficiency measures and transport measures.
- Target value: By the end of 2029, emission reduction obligations have been met: SO<sub>2</sub> - 60%, NO<sub>x</sub> -25%, VOC -10%, NH<sub>3</sub> -25% and PM<sub>2.5</sub> -5% compared with 2005.

Key activities contributing to achievement of the operational objective: implementation of measures from the NECP and the Programme of Measures, control of large emission sources, increase of RES, transport measures, manure management, reduction of biowaste and improvement of the emission inventory.

Challenges in achieving the operational objective: uncertainties in projections, dependence on sectoral policies and investments, the need to align energy and environmental objectives, data limitations and the demanding nature of reporting under international obligations.

### **STRATEGIC OBJECTIVE 2: Further improvement of air quality monitoring and management**

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This strategic objective relates to strengthening the system of monitoring, emission inventories, reporting, coordination and alignment with the EU acquis, so that decisions on air quality are based on reliable data and measures are directed toward the most important sources of pollution.

Strategic objective indicator: Degree of functionality of the air quality monitoring and management system, measured through availability of validated data, timely reporting, operation of the coordination mechanism, alignment of regulations and availability of information to the public.

- Baseline value: The monitoring and reporting system has been established, but needs have been identified for strengthening data quality, institutional coordination, human and technical capacities and further alignment with the new air quality directive.
- Interim value: By the end of 2027, a coordination body has been established, the data exchange system between MERS, the Agency, local self-governments and sectoral institutions has been improved, and key amendments to regulations and methodologies for the application of stricter standards have been prepared.
- Target value: By the end of 2029, regular annual reporting on air quality and emissions has been ensured, a functional coordination mechanism is in place, data and plans are publicly available, and a framework has been prepared for the application of EU standards that will apply from 2030.

Key activities for achieving the strategic objective: strengthening and validation of air quality monitoring, improvement of the emission inventory and projections, preparation and updating of air quality plans, alignment of regulations, transparent public information and annual reporting on Strategy implementation.

Challenges in achieving the strategic objective: limited human and financial resources, the need for continuous improvement of methodologies, dependence on data from other sectors, technical requirements of European reporting and the need for consistent coordination of multiple institutions.

### **OPERATIONAL OBJECTIVE 2.A: Improvement of the quality of data on air quality and emissions of pollutants into the air**

Reliable, validated and timely available data are the basis for planning measures and reporting in line with national and international obligations. The objective covers improvement of monitoring, emission inventories, projections and public availability of data.

Operational objective indicator: Degree of availability and validity of data from air quality monitoring and the national emission inventory, number of reports published on time and number of improved methodological procedures.

- Baseline value: The monitoring and reporting system has been established, but there are needs to improve the quality, completeness and comparability of data, as well as to strengthen the emission inventory.

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- Interim value: By the end of 2027, procedures for validation, processing and publication of data have been improved, with regular annual reporting on air quality and emissions.
- Target value: By the end of 2029, reliable and comparable data have been provided for all air quality zones, the emission inventory is regularly updated and information on implementation of the Strategy is publicly available.

Key activities contributing to achievement of the operational objective: improvement of the state monitoring network, QA/QC procedures, emission inventories and projections, digitalisation of data and strengthening of the capacities of the Agency and competent institutions.

Challenges in achieving the operational objective: technical complexity of measurements and validation, the need for regular maintenance of equipment, lack of staff, dependence on data from other sectors and the need for stable financing.

### **OPERATIONAL OBJECTIVE 2.B: Improvement of cooperation among relevant institutions, local self-government units, civil society and the professional public**

Effective air quality management requires coordination between the national and local levels, sectoral ministries, expert institutions, the business sector, civil society and the public. The objective is to ensure regular monitoring of the implementation of measures and timely resolution of problems in implementation.

Operational objective indicator: Established and functional coordination body, number of meetings held, number of reports prepared and number of activities implemented jointly with local self-governments and other actors.

- Baseline value: Coordination exists through the regular competences of institutions, but it is not sufficiently institutionalized for the needs of monitoring Strategy implementation.
- Interim value: By the end of 2027, a coordination body has been established and initial meetings have been held to monitor the Action Plan and align sectoral activities.
- Target value: By the end of 2029, the coordination body regularly monitors implementation of the Strategy, prepares reports and proposes corrective measures, with the involvement of local self-governments, civil society and the professional public.

Key activities contributing to achievement of the operational objective: establishment of the coordination body, preparation of reports, public consultations, data exchange and strengthening of cooperation with local self-governments and sectors that affect emissions.

Challenges in achieving the operational objective: overlapping competences, different capacities of local self-governments, lack of financial and human resources and the need for continuous communication between sectors.

### **OPERATIONAL OBJECTIVE 2.C: Further alignment with stricter air quality standards**

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New EU standards in the field of air quality require gradual alignment of legislation, methodologies, air quality plans and institutional capacities. The objective is to prepare Montenegro for the application of stricter limit values and planning and reporting requirements from 2030.

Operational objective indicator: Number of prepared or adopted regulations, methodologies, plans and roadmaps for the application of stricter air quality standards and obligations from the EU acquis.

- Baseline value: The national system is partially aligned with the current EU framework, while further alignment with Directive (EU) 2024/2881 and the requirements of the NEC framework is needed.
- Interim value: By the end of 2027, amendments to regulations and methodological documents necessary for further alignment have been prepared, including a roadmap for reaching stricter limit values where needed.
- Target value: By the end of 2029, a legal and institutional framework has been established that enables the application of stricter air quality standards and reporting in accordance with EU requirements.

Key activities contributing to achievement of the operational objective: analysis of alignment, preparation of regulations, updating of air quality plans, alignment of monitoring and reporting methodologies, strengthening of administrative capacities.

Challenges in achieving the operational objective: dynamics of adoption of regulations, demanding nature of new standards, need for additional financing of monitoring and measures, as well as the need for coordination with energy, transport, agricultural and social policy.

### **3. DESCRIPTION OF KEY ACTIVITIES FOR THE IMPLEMENTATION OF OPERATIONAL OBJECTIVES**

*The key activities for the implementation of the operational objectives have been selected from the list of measures considered, based on modelling of measure effectiveness carried out using the LEAP soft*

*Measures in this chapter represent key interventions through which the operational objectives of the Strategy are achieved. Their elaboration is the basis for the Action Plan and the Programme of Measures.*

The modelling results for the scenario with existing measures are presented in the following table:

***Table 5: Annual emission reductions compared with the scenario with existing measures (kt/year)***

|                                                                | NOx        | NM VOC      | SOx       | NH3  | PM2.5       | Note |
|----------------------------------------------------------------|------------|-------------|-----------|------|-------------|------|
| M1. Reconstruction of Pljevlja TPP and future operational plan | <b>5.4</b> | 0.01        | <b>73</b> |      | 0.06        |      |
| M2. New RES power plants (wind, solar)                         | 0.08       | <b>0.73</b> | 0.2       | 0.01 | <b>0.69</b> |      |

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|                                                           |      |             |       |      |             |                                     |
|-----------------------------------------------------------|------|-------------|-------|------|-------------|-------------------------------------|
| M3. RES auctions and additional capacity                  | 0.1  | <b>0.97</b> | 0.2   | 0.01 | <b>0.99</b> |                                     |
| M4. Development of ETS/CP mechanisms                      |      |             |       |      |             | Effect covered by measure M1        |
| M5. Rehabilitation of small hydropower plants             |      |             |       |      |             | Effect covered by measure M2        |
| M6. District heating in Pljevlja                          | 0.09 | <b>0.77</b> | 0.3   | 0.01 | <b>0.73</b> |                                     |
| M7. Energy efficiency in buildings                        | 0.05 | <b>0.56</b> | 0.18  | 0.01 | <b>0.69</b> |                                     |
| M8. Promotion of e-mobility                               | 0.18 | 0.03        | 0.003 |      | 0.01        |                                     |
| M9. Mandatory biofuel share                               | 0.42 | 0.08        | 0.01  |      | 0.03        |                                     |
| M10. Ban on import of Euro 4 and lower standard vehicles  | 0.09 | 0.02        | 0.001 |      | 0.01        |                                     |
| M11. Manure management and organic agriculture            |      |             |       |      |             | Measure belongs to the WEM scenario |
| M12. Reduction of biowaste and increased sewer connection |      |             |       |      |             | Measure belongs to the WEM scenario |

Source: Author's calculations

Note: measures marked in red indicate those with the greatest contribution to emission reductions

### **1.A – reduction of particulate matter concentrations and benzo(a)pyrene content in the Northern air quality zone**

In accordance with Table 5, the reduction of particulate matter emissions is primarily supported by the measure packages M2, M3, M6 and M7. These packages refer to:

- M2 New renewable energy power plants (wind and solar);
- M3 Renewable energy auctions and additional capacity;
- M6 District heating in Pljevlja;
- M7 Energy efficiency in buildings.

The reduction of particulate matter emissions will inevitably lead to a decrease in their concentrations in ambient air and to a sustainable improvement in air quality over the longer term.

- The introduction of new renewable energy sources through measure packages M2 and M3, within the process of decarbonising the energy sector, progressively leads to the elimination of fossil fuel use in energy production, thereby significantly improving air quality.
- The development of a district heating system in Pljevlja is a measure with high potential to reduce particulate matter emissions at the local level, by replacing a large number of

small individual emission sources with a single, centrally controlled source. This measure has long been considered a solution to air pollution in Pljevlja; however, due to prolonged delays in project implementation, it has come to represent a missed opportunity that has resulted in numerous environmental and health problems for the residents of the municipality. In accordance with Montenegro's energy and climate objectives (the NECP and the Low-Carbon Development Strategy), the heat source for the district heating system (Pljevlja TPP) will have a limited lifespan (10–15 years), which necessitates careful planning of the system's development with an alternative heat source. This would justify the investment and encourage residents of Pljevlja to connect to the district heating system.

- The package of measures to improve energy efficiency in buildings is a long-term programme planned through the Reform Agenda and the NECP and, among other actions, includes the implementation of a comprehensive programme for the renovation of public and private buildings in the Pljevlja mining region. This programme provides financial solutions for energy efficiency improvements and the replacement of fossil fuel-based heating systems. Energy efficiency measures and the renovation of public and private buildings will be implemented across the entire territory of Montenegro in the coming period.

#### **1.B – reduction of benzo(a)pyrene content in particulate matter in the Central air quality zone**

Given that benzo(a)pyrene in air occurs within particulate matter, Objective 1.B will be achieved through the implementation of the same measures envisaged for achieving Objective 1.A, with the exception that measure M6 (district heating in Pljevlja) will have no impact on the Central air quality zone. Accordingly, based on the assessed effectiveness of the measures, the selected measure packages for this operational objective are:

- M2 New renewable energy power plants (wind and solar);
- M3 Renewable energy auctions and additional capacity;
- M7 Energy efficiency in buildings.

#### **1.C – reduction of emissions of air pollutants (NO<sub>x</sub>, SO<sub>2</sub>, NMVOC, NH<sub>3</sub> and PM<sub>2.5</sub>)**

Achievement of Objective 1.C will occur synergistically with the achievement of Objectives 1.A and 1.B with regard to particulate matter emissions, while simultaneously contributing to the reduction of emissions of non-methane volatile organic compounds (NMVOC) through the implementation of measures within packages M2, M3, M6 and M7.

The key measure for reducing NO<sub>x</sub> and SO<sub>2</sub> emissions is the reconstruction of Pljevlja TPP (M1). During the initial days of trial operation, the expected reductions in NO<sub>x</sub> emissions were confirmed, while operation of the plant without a functional flue gas desulphurisation system resulted in high sulphur dioxide concentrations. The continued operation of the thermal power plant is conditional upon strict compliance with the prescribed emission standards.

Projections have shown that none of the planned measures have a decisive impact on ammonia emissions, which largely originate from the agricultural sector. The reductions in ammonia emissions achieved in the previous period are mainly attributable to a decrease in livestock numbers. Further reductions in ammonia emissions will be implemented through the application of mandatory measures in accordance with Directive (EU) 2016/2284.

## **2.A – improving the quality of data on air quality and emissions of air pollutants**

Measures aimed at achieving the operational objectives related to Strategic Objective 2 — improving air quality monitoring and management — differ significantly in nature, implementation and monitoring of results from the measures aimed at achieving Strategic Objective 1, which concerns improving air quality in Montenegro; however, they ultimately make a substantial contribution to achieving this objective.

Although improving data quality cannot directly influence air pollution, it will support better planning in the forthcoming period and facilitate the monitoring of the effects of pollution reduction measures. Activities aimed at improving data quality are closely linked to the process of strengthening institutional capacities and further harmonising the legal and strategic framework with EU requirements. The planned measures are related to fulfilling obligations arising from Directive (EU) 2024/288 and Directive (EU) 2016/2284:

- Improvement of the legal framework through the full transposition of Directive (EU) 2024/288 and Directive (EU) 2016/2284;
- Review of air quality zones in accordance with Article 7 of Directive (EU) 2024/288 and enhancement of the air quality monitoring network in line with the completed review;
- Introduction of air quality modelling practices through the allocation of statutory responsibilities and capacity building (IHMS);
- Improvement of reporting on emissions of air pollutants in accordance with the requirements of Directive (EU) 2016/2284, including reporting on projections and spatially disaggregated emissions inventories;
- Establishment of monitoring of the impacts of air pollution on ecosystems in accordance with the requirements of Directive (EU) 2016/2284.

## **2.B – strengthening cooperation among relevant institutions, local self-government units, civil society and the professional community**

Improving cooperation among relevant institutions, local self-government units, civil society and the professional community is addressed in Chapter 4.1 of this document through the recommendation to establish a coordination body for the implementation of this Strategy.

## **2.C – further alignment with stricter air quality standards**

Further alignment with stricter air quality standards will be achieved through the following activities:

- Improvement of the legal framework through the full transposition of Directive (EU) 2024/2881;
- Use of the mechanism for postponing the application of stricter standards in accordance with Article 18 of Directive (EU) 2024/2881 in cases where this is necessary and justified;
- Implementation of a specific plan for the implementation of Directive (EU) 2024/2881;<sup>22</sup>
- Preparation of roadmaps for achieving stricter limit and target values that cannot be attained by 2030;
- Preparation of local environmental protection plans in accordance with the Law on the Environment, including mandatory air protection measures aligned with the air quality plans for the air quality zones.

#### **4. DESCRIPTION OF ACTIVITIES OF COMPETENT AUTHORITIES AND BODIES FOR MONITORING THE IMPLEMENTATION OF THE STRATEGY**

The effective implementation of the Air Quality Management Strategy requires clearly defined roles and responsibilities, coordination and monitoring mechanisms, as well as consistent reporting. This chapter precisely defines responsibilities at the national and local levels, together with the procedures that ensure compliance with European requirements and national legislation.

##### **Ministry of Ecology, Sustainable Development and Northern Development**

The Ministry of Ecology, Sustainable Development and Northern Development plays a key role in coordinating and supervising the implementation of this Strategy. Within its competences, the Ministry:

- ✓ coordinates the implementation of the Strategy and the Action Plan;
- ✓ ensures horizontal coordination among line ministries, the Environmental Protection Agency, the Eco Fund, local self-governments, health institutions and other stakeholders;
- ✓ proposes and implements amendments to legislation in the field of air quality;
- ✓ monitors the implementation of air quality plans at zonal and local levels;
- ✓ ensures the implementation of obligations arising from the EU accession process and international agreements;
- ✓ ensures the integration of air quality policy with energy, transport, health and social policy;
- ✓ organises regular coordination meetings with key institutions.

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<sup>22</sup> The plan was prepared within the framework of the PLAC project.

The Ministry is responsible for the overall functional management of the implementation of the Strategy and bears institutional responsibility for achieving its objectives.

### **Environmental Protection Agency**

The Environmental Protection Agency (EPA) has a central technical and professional role in the air quality management system. Its key activities include:

- ✓ management of the national air quality monitoring network;
- ✓ ensuring continuous and reliable monitoring of air pollutants;
- ✓ implementation of data quality assurance and quality control systems;
- ✓ regular real-time public reporting;
- ✓ preparation of annual air quality reports;
- ✓ preparation and updating of air pollutant emissions inventories;
- ✓ submission of data to international bodies and European institutions;
- ✓ technical support to the Ministry and local self-governments.

The EPA provides the analytical basis for policy-making and policy evaluation.

### **Local self-governments**

Local self-government units have a key implementation role. Their responsibilities include:

- ✓ preparation and implementation of local air quality plans;
- ✓ planning and implementation of measures in the sectors of heating, transport, energy and urban planning;
- ✓ implementation of emission reduction measures in accordance with air quality zones;
- ✓ local reporting and communication with the population;
- ✓ cooperation with the Ministry, the EPA and the Eco Fund;
- ✓ integration of air quality measures into local development documents.

Local authorities bear particular responsibility in zones where exceedances of limit and target values have been identified.

### **Ministry of Energy and Mining**

The Ministry of Energy and Mining is responsible for implementing policies affecting the energy sector in the areas of:

- ✓ implementation of the National Energy and Climate Plan;
- ✓ planning and implementation of energy transition measures;
- ✓ monitoring emissions from the energy sector;
- ✓ improving energy efficiency;
- ✓ improving heating systems, including the development of district heating;

## ***Air Quality Management Strategy for the period 2026–2029***

- ✓ ensuring the safe and environmentally responsible operation of large energy installations.

Particular importance is attached to activities related to reducing emissions from thermal power plants and transitioning to cleaner energy sources.

### **Ministry of Transport**

The Ministry of Transport has a key role in measures to reduce emissions from transport and contributes to the implementation of the Strategy through:

- ✓ improvement of public transport;
- ✓ development of sustainable mobility;
- ✓ regulation of technical standards for vehicles;
- ✓ reduction of the share of high-emission vehicles;
- ✓ support for the transition to clean vehicles and e-mobility.

These activities are aligned with the objectives of EU air quality and climate neutrality policies.

### **Ministry of Finance and Ministry of European Affairs**

Ministry of Finance:

- ✓ ensures the financial sustainability of the implementation of the Strategy;
- ✓ plans and provides funding for the implementation of measures;
- ✓ supports fiscal mechanisms that contribute to emission reductions.

Ministry of European Affairs:

- ✓ coordinates issues related to Chapter 27 – Environment and Climate Change;
- ✓ ensures harmonisation of air quality policy with the EU acquis.

### **Ministry of Agriculture, Forestry and Water Management**

Within the framework of the Air Quality Management Strategy, the Ministry of Agriculture, Forestry and Water Management has an important role in implementing measures related to emissions reduction in the agriculture sector and the promotion of sustainable land and forest management practices.

- ✓ Participates in the implementation of measures related to reducing emissions from the agriculture sector, particularly ammonia (NH<sub>3</sub>) emissions.
- ✓ Promotes sustainable agricultural practices and efficient management of manure and fertilizers.
- ✓ Contributes to the conservation and improvement of forest ecosystems, which play an important role in regulating air quality and climate conditions.

## **Eco Fund**

The Eco Fund represents a key financial and implementation mechanism for carrying out measures that contribute to improving air quality. Its activities include:

- ✓ financing energy efficiency measures in households and public buildings;
- ✓ subsidy programmes for replacing solid fuel heating systems;
- ✓ programmes for the introduction of renewable energy sources;
- ✓ support for projects of local communities;
- ✓ implementation of public calls and grant programmes.

## **Health system institutions**

The Institute of Public Health and healthcare institutions play a significant role in:

- ✓ monitoring the impacts of air pollution on public health;
- ✓ assessing the health benefits of implemented measures;
- ✓ informing and advising the public in situations of increased pollution;
- ✓ contributing to policy development.

### **4.1 Coordination body and oversight mechanism**

For the purpose of systematically managing the implementation of the Strategy, the Government of Montenegro, upon the proposal of the Ministry of Ecology, Sustainable Development and Development of the North, may establish a Coordination Body for the implementation of the Air Quality Management Strategy. The Ministry chairs the work of the Coordination Body, prepares the agenda, coordinates data collection and ensures that the body's recommendations are incorporated into annual reports and, where necessary, into amendments to the Action Plan. The Coordination Body consists of representatives of:

For the purpose of systematic management of Strategy implementation, a coordination body shall be established comprising representatives of:

- ✓ the Ministry of Ecology, Sustainable Development and Northern Development (chair);
- ✓ the Environmental Protection Agency;
- ✓ the Ministry of Energy and Mining;
- ✓ the Ministry of Transport;
- ✓ the Ministry of Finance;
- ✓ the Eco Fund;
- ✓ selected local self-governments;
- ✓ Non-governmental organisations;
- ✓ the health sector.
- ✓ non-governmental organizations, the professional public and organizations representing the interests of vulnerable groups,

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- ✓ the health sector, including institutions that hold data relevant for monitoring the impact of air pollution on the health of women and men.

The coordination body:

- ✓ reviews progress in the implementation of measures;
- ✓ identifies obstacles and proposes corrective measures;
- ✓ ensures intersectoral cooperation;
- ✓ reviews annual reports and provides recommendations.

### 4.2 Reporting and evaluation

In accordance with the Strategy:

- ✓ the EPA submits an annual air quality report;
- ✓ the Ministry prepares a consolidated report on progress in the implementation of the Strategy;
- ✓ local self-governments report on the implementation of local measures;
- ✓ the coordination body reviews reports and proposes corrective measures;
- ✓ reports are published to ensure transparency.

## 5. REPORTING AND EVALUATION FRAMEWORK

The effective implementation of the Air Quality Management Strategy is based on establishing a clear, transparent and regular system of reporting and evaluation. This system ensures monitoring of progress against the defined strategic and operational objectives, enables the timely identification of obstacles in the implementation of measures, and supports data-driven corrective decision-making.

Potential obstacles in the implementation of the Strategy relate to insufficient administrative and technical capacities of competent institutions, limited financial resources for the implementation of certain measures, the need to strengthen intersectoral coordination among energy, transport, local self-governments and environmental protection, as well as possible delays in the implementation of planned sectoral measures. These obstacles are mitigated by strengthening institutional capacities, improving coordination among competent authorities, timely planning of budget funds and using available EU and international funds.

### 5.1 OBJECTIVES OF THE REPORTING AND EVALUATION SYSTEM

The reporting and evaluation system is established with the aim to:

- ✓ ensure regular monitoring of the implementation of the Strategy and the Action Plan;
- ✓ ensure transparency regarding the results of implemented measures;

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- ✓ enable assessment of the efficiency and effectiveness of measures, particularly in exceedance zones;
- ✓ provide a basis for aligning policies with new EU requirements and changes in air quality conditions;
- ✓ contribute to evidence-based decision-making and the improvement of public policies;
- ✓ inform the public, relevant institutions and international partners.

### 5.2 REPORTING ENTITIES

The following institutions participate in the reporting system:

- ✓ **Environmental Protection Agency** – technical and analytical lead for reporting on air quality and emissions;
- ✓ **Ministry of Ecology, Sustainable Development and Northern Development** – coordinator of the reporting process and preparation of consolidated reports;
- ✓ **Ministry of Energy and Mining, Ministry of Transport** and other line ministries – report on the implementation of sectoral measures;
- ✓ **Eco Fund** – reports on financial programmes and implemented projects;
- ✓ **local self-government units** – report on the implementation of local measures and air quality plans;
- ✓ **Institute of Public Health** – reports on indicators of the impact of air pollution on public health.

### 5.3 TYPES AND FREQUENCY OF REPORTING

The reporting system includes:

#### **a) Regular annual reporting**

- ✓ the EPA prepares the Annual Air Quality and Emissions Report, including an analysis of trends and exceedances;
- ✓ local self-governments submit reports on the implementation of measures from local plans;
- ✓ line ministries and the Eco Fund submit reports on activities implemented within their respective competences;
- ✓ the Ministry of Ecology, Sustainable Development and Northern Development prepares a Consolidated Annual Report on the implementation of the Strategy.

The Ministry submits the consolidated annual report to the Government of Montenegro for consideration no later than 31 January of the current year for the previous year, and after consideration it is published on the Ministry's website and the Government portal.

#### **b) Periodic progress reports**

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- ✓ one comprehensive progress assessment is carried out at the mid-point of the Strategy implementation period;
- ✓ the report includes an assessment of the achievement of objectives, evaluation of the effects of measures, recommendations and proposed adjustments.

### **c) Reporting to the European Union and under international obligations**

- ✓ reporting on emissions, air quality and the implementation of measures is carried out in accordance with the requirements of relevant EU directives and international conventions;
- ✓ the EPA and the Ministry ensure the timely submission of data to the European Commission, the European Environment Agency and other bodies.

## **5.4 EVALUATION OF THE STRATEGY**

Evaluation is carried out in order to assess:

- ✓ the extent to which the strategic and operational objectives have been achieved;
- ✓ the extent to which the implemented measures have led to reductions in pollutant concentrations;
- ✓ the efficiency of allocated financial resources;
- ✓ the impact of measures on public health;
- ✓ the need for amendments to the Strategy or the Action Plan.

The evaluation is conducted by the Ministry of Ecology, Sustainable Development and Northern Development, with the involvement of the EPA, the Eco Fund, line ministries and representatives of local self-governments. Where necessary, independent experts or international partners may be engaged.

The final ex-post evaluation of the Strategy is carried out after the expiry of the Strategy's validity period, in 2029/2030, in order to assess the achievement of strategic and operational objectives, the effects of measures on air quality, human health, biodiversity, climate objectives and gender-recognized risks, as well as the efficiency of funds spent. The evaluation is coordinated by the Ministry of Ecology, Sustainable Development and Development of the North, with the involvement of the Environmental Protection Agency, the Eco Fund, line ministries, local self-governments and the Institute of Public Health. An independent evaluator is engaged for the final evaluation, and funds for this purpose are planned in the Ministry's budget or from available donor/IPA funds.

## **5.5 CORRECTIVE ACTION MECHANISMS**

If reporting and evaluation determine that:

- ✓ objectives have not been achieved within the planned timeframe;
- ✓ delays in the implementation of measures have occurred;

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- ✓ systemic barriers to implementation exist;
- ✓ air quality conditions have deteriorated;

the Ministry, in cooperation with the Coordination Body, proposes and implements corrective measures, which may include:

- ✓ revision of the Action Plan;
- ✓ redefinition of priorities;
- ✓ intensification or adjustment of existing measures;
- ✓ introduction of additional interventions;
- ✓ strengthening of financial and institutional capacities.

### 5.6 TRANSPARENCY AND PUBLIC INFORMATION

In order to ensure transparency and public trust:

- ✓ all annual reports, reports on the implementation of action plans, the final evaluation and the report from the public consultation are publicly published on the Ministry's website, the Government portal and, where applicable, on the e-Government portal;
- ✓ air quality information is available in real time;
- ✓ in the event of exceedances of standards, the public is informed in a timely manner, accompanied by recommendations from health institutions.

## 6. ACTION PLAN

The Action Plan for the forthcoming four-year period 2026–2029 will contain a synchronised timetable for the implementation of measures identified in the air quality plans for each individual zone, measures for the implementation of the Air Pollution Reduction Programme, as well as measures for further improving air quality monitoring and management. As noted above, the selection of the most effective measures to achieve improvements in air quality, i.e. reductions in emissions of air pollutants, will ultimately be determined based on the results of air quality modelling using the LEAP software, which is currently under way.

Measures for further improvement of air quality will include, at a minimum:

- ✓ further alignment of legislation in the field of air quality through full transposition of Directive 2016/2284 and Directive 2024/2881;
- ✓ accession to the amended Gothenburg Protocol based on the established mandatory emission reduction commitments;
- ✓ further enhancement of the strategic framework through the development of local air quality plans within Local Environmental Action Plans;

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- ✓ preparation and implementation of a plan for the implementation of Directive 2024/2881;
- ✓ determination of the possibilities for applying derogation mechanisms under Directive 2024/2881;
- ✓ review of air quality zones and the structure of the air quality monitoring network in relation to recorded concentrations and assessment thresholds;
- ✓ regular maintenance and calibration of monitoring instruments;
- ✓ strengthening capacities for the preparation of emissions inventories and projections of air pollutants;
- ✓ improvement of the quality of data on emissions of air pollutants.

The table below presents the measures grouped by implementation phases, together with clearly defined strategic and operational objectives, responsible institutions, estimated costs and sources of financing, as well as indicators for monitoring implementation and the effects of the measures.

Each measure in the Action Plan is linked to the relevant strategic and operational objective of the Strategy, as well as to the indicator that it directly affects.

## Air Quality Management Strategy for the period 2026–2029

|                                                                                                                                                                                                                   | Measure / package of measures                                                     | Strategic / operational objective                                                                                                                                                                                                                                                                                          | Responsible authority                                                                                                                                                                                                                                                    | Estimated costs / sources of financing                                                                                                           | Implementation period | Indicators                                                                 |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------|
| Strategic and operational objectives in this table are recorded se po oznakama: Strategic Objective 1 - operational objectiveevi 1.A, 1.B i 1.C; Strategic Objective 2 - operational objectiveevi 2.A, 2.B i 2.C. |                                                                                   |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                          |                                                                                                                                                  |                       |                                                                            |
| Measures planned for implementation during the period 2026–2027                                                                                                                                                   |                                                                                   |                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                          |                                                                                                                                                  |                       |                                                                            |
| 1.                                                                                                                                                                                                                | Establishment of a coordination body for the implementation of this Strategy.     | Objective 2: Further enhancement of air quality monitoring and management<br>2.B – strengthening cooperation among relevant institutions, local self-government units, civil society and the professional community;                                                                                                       | Ministry of Ecology, Sustainable Development and Northern Development (MERS)                                                                                                                                                                                             | No budget funds are foreseen                                                                                                                     | 2026–2027             | Decision on the establishment of the coordination body, number of meetings |
| 2.                                                                                                                                                                                                                | Preparation of a Just Transition Plan for the Pljevlja coal region                | Objective 1: Improvement of air quality<br>1.A – reduction of particulate matter concentrations and benzo(a)pyrene content in the Northern air quality zone;<br><br>1.C - reduction of emissions of pollutants (NOx, SO2, VOC, NH3 i PM2.5)                                                                                | General Secretariat of the Government of Montenegro, National Council for Sustainable Development, Ministry of Energy and Mining (MER), Ministry of Ecology, Sustainable Development and Northern Development (MERS), Municipality of Pljevlja, Pljevlja Coal Mine, EPCG | 0.2 million EUR<br><br>Reform Agenda 2.2.1: Preparation and adoption of an action plan for reskilling and employment in the Pljevlja coal region | 2026–2027             | Number of reskilled / employed workers                                     |
| 3.                                                                                                                                                                                                                | Methodology for defining energy-poor groups and measures to reduce energy poverty | Objective 1: Improvement of air quality<br>1.A – reduction of particulate matter concentrations and benzo(a)pyrene content in the Northern air quality zone; 1.B – reduction of benzo(a)pyrene content in particulate matter in the Central air quality zone;<br><br>1.C - reduction of emissions of pollutants (NOx, SO2, | Ministry of Energy and Mining, Ministry of Social Welfare, Family Care and Demography, Eco Fund, MONSTAT                                                                                                                                                                 | 40,000 EUR<br><br>Reform Agenda Measure 2.1.2                                                                                                    | 2026–2027             | Methodology and Programme for the mitigation of energy poverty developed   |

## Air Quality Management Strategy for the period 2026–2029

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|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                |                                                                                                                       | VOC, NH <sub>3</sub> and PM <sub>2.5</sub> )                                                                                                                                    |                                                                                                                                           |                                                                                                                                                                                                    |                                                                                                                                                        |                                                                                                                                                                                                                                                      |
| 4.                                                                                                                                             | Rehabilitation of small hydropower plants                                                                             | Objective 1: Improvement of air quality<br>1.C – reduction of emissions of air pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM <sub>2.5</sub> ).    | EPCG                                                                                                                                      | €0.8 million                                                                                                                                                                                       | 2026–2027                                                                                                                                              | Expected emission reductions:<br>SO <sub>2</sub> – 1 kt; NO <sub>x</sub> – 0.1 kt                                                                                                                                                                    |
| 5.                                                                                                                                             | Reconstruction of Pljevlja TPP and plan for its future operation                                                      | Objective 1: Improvement of air quality<br>1.C – reduction of emissions of air pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM <sub>2.5</sub> ).    | EPCG, Ministry of Energy and Mining                                                                                                       | Project funds for the environmental reconstruction of TPP Pljevlja (54,5 mil €); the Strategy monitors effects, emission verification and reporting, at no additional cost to the Strategy budget. | 2026-2027: monitoring of trial operation, verification of emissions and reporting on the effects of the completed environmental reconstruction. -2027. | Trial operation report; verified data on emissions and achieved reduction of NO <sub>x</sub> , NMVOC, SO <sub>2</sub> and PM <sub>2.5</sub> (expected reduction nox – 5,4 kt, nmvoc – 0,01 kt, so <sub>2</sub> – 73 kt, pm <sub>2.5</sub> – 0,06 kt) |
| 6.                                                                                                                                             | Improvement of the legal framework through full transposition of Directive (EU) 2024/2881 i Direktive (EU) 2016/2284; | Objective 2: Further improvement of air quality monitoring and management<br>2.C – further alignment with stricter air quality standards.                                       | Ministry of Ecology, Sustainable Development and Northern Development                                                                     | The budget is not yet known.<br><br>IPA project                                                                                                                                                    | 2026–2027                                                                                                                                              | Publication of the Law and secondary legislation in the Official Gazette of Montenegro                                                                                                                                                               |
| <b>Measures of the first action plan that begin in the period 2026-2027 and whose completion or full effect is expected no later than 2028</b> |                                                                                                                       |                                                                                                                                                                                 |                                                                                                                                           |                                                                                                                                                                                                    |                                                                                                                                                        |                                                                                                                                                                                                                                                      |
| 7.                                                                                                                                             | Financial incentives for citizens/private households (for investments in energy efficiency and reduction of           | Objective 1 – Improvement of air quality<br>1.A reduction of particulate matter concentrations and benzo(a)pyrene content in the Northern air quality zone;<br>1.B reduction of | Ministry of Energy and Mining; Eco Fund with support from UNDP; local distributors and installers of EE equipment; local commercial banks | €8.8 million, of which €2.8 million for the Municipality of Pljevlja                                                                                                                               | 2026–2028                                                                                                                                              | Funds disbursed; number of households participating in the programme; Share of households using cleaner energy sources for heating (target:                                                                                                          |

## Air Quality Management Strategy for the period 2026–2029

|                                                                                                                                          |                                                                                                                                                                             |                                                                                                                                                                |                                                                                                        |               |           |                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------|-----------|---------------------------------------------------------------------------------------------------------|
|                                                                                                                                          | energy poverty))                                                                                                                                                            | benzo(a)pyrene content in particulate matter in the Central air quality zone;<br><br>1.C - reduction of emissions of pollutants (NOx, SO2, VOC, NH3 and PM2.5) |                                                                                                        |               |           | up to 70% in private buildings). achieved level of energy efficiency / reduced energy demand            |
| 8.                                                                                                                                       | Review of air quality zones in accordance with Article 7 of Directive (EU) 2024/2881 and recommendations for improving the air quality monitoring network                   | Objective 2 – Further improvement of air quality monitoring and management<br>2.A improvement of the quality of air quality and emissions data                 | Ministry of Ecology, Sustainable Development and Northern Development; Environmental Protection Agency | Not estimated | 2026–2028 | Report on the completed assessment with recommendations for improving the network                       |
| 9.                                                                                                                                       | Improvement of reporting on air pollutant emissions in accordance with Directive (EU) 2016/2284, including reporting of projections and spatially disaggregated inventories | Objective 2 – Further improvement of air quality monitoring and management<br>2.A improvement of the quality of air quality and emissions data                 | Environmental Protection Agency                                                                        | IPA project   | 2026–2028 | Emission inventories submitted through CLRTAP/EIONET                                                    |
| <b>Measures of the first action plan that begin in 2027, with an obligation to review and update them through the second action plan</b> |                                                                                                                                                                             |                                                                                                                                                                |                                                                                                        |               |           |                                                                                                         |
| 10.                                                                                                                                      | Introduction of air quality modelling practices through allocation of statutory responsibilities and capacity building (IHMS)                                               | Objective 2 – Further improvement of air quality monitoring and management<br>2.A improvement of the quality of air quality and emissions data                 | Institute of Hydrometeorology and Seismology (IHMS)                                                    | IPA project   | 2027–2028 | Publication of the Law on Air Protection in the Official Gazette of Montenegro; number of trained staff |
| 11.                                                                                                                                      | Establishment of monitoring of the impacts of air pollution on                                                                                                              | Objective 2 – Further improvement of air quality monitoring and management<br>2.A improvement of                                                               | Environmental Protection Agency                                                                        | Not estimated | 2027–2028 | Reports on the impacts of air pollution on ecosystems                                                   |

## Air Quality Management Strategy for the period 2026–2029

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|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------|-----------------------------------------------------------------------------|
|                                                                                | ecosystems in accordance with Directive (EU) 2016/2284                                                                                                             | the quality of air quality and emissions data<br><br>2.C – further alignment with stricter air quality standards                                                             |                                                                                                                        |                                      |           |                                                                             |
| 12.                                                                            | Use of derogation mechanisms and preparation of a roadmap for achieving stricter air quality standards                                                             | Objective 2 – Further improvement of air quality monitoring and management<br>2.C further alignment with stricter air quality standards                                      | Ministry of Ecology, Sustainable Development and Northern Development                                                  | €50,000                              | 2027–2028 | Roadmap prepared                                                            |
| 13.                                                                            | Implementation of a specific plan for the implementation of Directive (EU) 2024/2881                                                                               | Objective 2 – Further improvement of air quality monitoring and management<br>2.C further alignment with stricter air quality standards                                      | Ministry of Ecology, Sustainable Development and Northern Development; Environmental Protection Agency; IHMS           | In accordance with the prepared plan | 2027–2028 | Report on implementation of the plan                                        |
| 14.                                                                            | Use of the mechanism for postponing the application of stricter standards in accordance with Article 18 of Directive (EU) 2024/2881, where necessary and justified | Objective 2 – Further improvement of air quality monitoring and management<br>2.C further alignment with stricter air quality standards                                      | Ministry of Ecology, Sustainable Development and Northern Development                                                  | Not estimated                        | 2027–2028 | Analysis prepared in accordance with Article 18 of Directive (EU) 2024/2881 |
| <b>Indicative measures for the second action plan for the period 2028-2029</b> |                                                                                                                                                                    |                                                                                                                                                                              |                                                                                                                        |                                      |           |                                                                             |
| 15.                                                                            | Package of mandatory measures to reduce ammonia emissions <sup>23</sup>                                                                                            | Objective 1: Improvement of air quality<br>1.C – reduction of emissions of air pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM <sub>2.5</sub> ). | Ministry of Agriculture and Rural Development<br>Ministry of Ecology, Sustainable Development and Northern Development | IPARD, where applicable              | 2028–2029 | Report on the implementation of measures                                    |
| 16.                                                                            | Implementation of gender-                                                                                                                                          | Objective 2: Further improvement of air                                                                                                                                      | Environmental Protection Agency;                                                                                       | €30,000 state budget + funds         | 2028–2029 | Number of citizens covered                                                  |

<sup>23</sup> Directive (EU) 2016/2284, Annex III, Part II

## Air Quality Management Strategy for the period 2026–2029

|                                                                                                                         |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                             |                                                                                                                                                                                                                                                                            |           |                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                         | sensitive campaigns to raise public awareness                                                 | quality monitoring and management.<br><br>2.B - improvement of cooperation among relevant institutions, local self-government units, civil society and the professional public                                                                                                                                                                                                      | Local Self-Government Units; Civil Sector                                                                                                   | from local government budgets, donor funds                                                                                                                                                                                                                                 |           | by the campaign, disaggregated by sex, age, air quality zone and target group; number of campaigns aimed at energy-poor households and vulnerable groups                                                                                                                                                                                                              |
| <b>Continuous measures: implementation in 2026-2027 and mandatory updating through the second action plan 2028-2029</b> |                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                             |                                                                                                                                                                                                                                                                            |           |                                                                                                                                                                                                                                                                                                                                                                       |
| 17.                                                                                                                     | Development and implementation of the regulatory framework for energy efficiency in buildings | Strategic objective 1: Improvement of air quality<br>1.A – reduction of concentrations of suspended particulate matter and benzo(a)pyrene content in the Northern air quality zone;<br>1.B – reduction of benzo(a)pyrene content in suspended particulate matter in the Central air quality zone;<br><br>1.C - reduction of emissions of pollutants (NOx, SO2, VOC, NH3 and PM2.5). | <b>Ministry of Energy and Mining; local authorities;</b> citizens; private companies; investors                                             | €10,000 (regulation) + €0.55 million (software for building certification)<br><br>Reform Agenda 2.2.1: Renovation of public and private buildings in the Pljevlja coal region, financial support for energy efficiency and the replacement of fossil-fuel heating systems. | 2026–2029 | Adoption or improvement of regulations in the field of energy efficiency in buildings;<br><br>Number of renovated public and private buildings;<br><br>Number of replaced heating systems using fossil fuels;<br><br>Transition of 90% of individual heating systems in public buildings and 70% in private buildings to clean fuels (target from the Reform Agenda). |
| 18.                                                                                                                     | Increased energy efficiency in public buildings                                               | Strategic objective 1: Improvement of air quality<br>1.A – reduction of concentrations of suspended particulate matter and benzo(a)pyrene content in the Northern air quality zone;<br>1.B – reduction of benzo(a)pyrene content in suspended particulate matter in the Central air quality zone;<br>1.C - reduction of emissions of                                                | Ministry of Energy and Mining; the bodies responsible for the management of publicly owned facilities at the level of local self-government | €80 million (40% of the budget expended)<br><br>Reform Agenda 2.2.1: Transition of 90% of individual heating systems in public buildings and 70% in private buildings to clean fuels                                                                                       | 2026–2029 | At least 30% of public buildings energy-renovated by 2029;<br><br>At least 90% of individual heating systems in public buildings transitioned to clean fuels;<br><br>Number of renovated public buildings and the area of renovated space (m²);<br><br>Estimated reduction in                                                                                         |

### *Air Quality Management Strategy for the period 2026–2029*

|     |                                                                                              | pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM <sub>2.5</sub> ).                                                                                                                                                                                                                                                                                                                                          |                                |                          |           | energy consumption in public buildings (MWh/year).                                                                                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19. | District heating in Pljevlja                                                                 | Strategic objective 1: Improvement of air quality<br>1.A – reduction of concentrations of suspended particulate matter and benzo(a)pyrene content in the Northern air quality zone;                                                                                                                                                                                                                                                    | EPCG; Municipality of Pljevlja | €23 million              | 2026–2029 | Construction of 20 connections to the primary district heating pipeline;<br><br>Development of a heating plant covering a heat demand of 44 MW (corresponding to the needs of approximately 4,400 equivalent households with lower building insulation standards).          |
| 20. | Development of decentralised energy generation by prosumers                                  | Strategic objective 1: Improvement of air quality<br>1.A – reduction of concentrations of suspended particulate matter and benzo(a)pyrene content in the Northern air quality zone;<br>1.B – reduction of benzo(a)pyrene content in suspended particulate matter in the Central air quality zone;<br><br>1.C - reduction of emissions of pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM <sub>2.5</sub> ). | EPCG                           | €220 million (2023–2030) | 2026–2029 | Number of registered prosumers (approximately 35,000 equivalent prosumers);<br><br>Total installed capacity of decentralized renewable energy generation (approximately 350 MW);<br><br>Amount of electricity generated from prosumer systems (approximately 400 GWh/year). |
| 21. | Local environmental protection plans in accordance with the Art.37 of the Law on Environment | Strategic objective 1: Improvement of air quality<br>1.A – reduction of concentrations of suspended particulate matter and benzo(a)pyrene content in the Northern air quality zone;                                                                                                                                                                                                                                                    | Local self-governments         | Not estimated            | 2026–2029 | Number of local environmental protection plans developed that include detailed measures for improving air quality                                                                                                                                                           |

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|     |                                                        |                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                        |                                                                                             |           |                                                                                                                                                        |
|-----|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|     |                                                        | <p>1.B – reduction of benzo(a)pyrene content in suspended particulate matter in the Central air quality zone;</p> <p>2.B - improvement of cooperation among relevant institutions, local self-government units, civil society and the professional public</p>                                                            |                                                                                                                                                        |                                                                                             |           |                                                                                                                                                        |
| 22. | Promotion of e-mobility                                | <p>Objective 1: Improvement of air quality</p> <p>1.C – reduction of emissions of air pollutants (NO<sub>x</sub>, SO<sub>2</sub>, VOC, NH<sub>3</sub> and PM2.5)</p> <p>Objective 2: Further improvement of air quality monitoring and management</p> <p>2.C – further alignment with stricter air quality standards</p> | Ministry of Energy and Mining, Ministry of Transport, Eco Fund, local self-governments                                                                 | €353 million (2025–2030)                                                                    | 2026–2029 | Expected emission reductions:<br>NO <sub>x</sub> – 0.18 kt,<br>NMVOC – 0.03 kt,<br>NH <sub>3</sub> – 0.003 kt,<br>PM2.5 – 0.01 kt                      |
| 23. | Modal shift of passenger and freight transport to rail | <p>Objective 2: Further improvement of air quality monitoring and management</p> <p>2.C – further alignment with more stringent air quality standards</p> <p>1.C - reduction of emissions of pollutants (NO<sub>x</sub>, SO<sub>2</sub>, VOC, NH<sub>3</sub> and PM2.5).</p>                                             | Ministry of Transport                                                                                                                                  | €112 million (EU grant)                                                                     | 2026–2029 | 70% share of rail in total freight transport by 2030                                                                                                   |
| 24. | Prevention of forest fires                             | <p>Objective 1: Improvement of air quality</p> <p>1.B – reduction of benzo(a)pyrene content in suspended particles in the Central air quality zone;</p> <p>1.C – reduction of emissions of air pollutants (NO<sub>x</sub>, SO<sub>2</sub>,</p>                                                                           | Ministry of the Interior, Ministry of Ecology, Sustainable Development and Northern Development Public Enterprise National Parks of Montenegro, Forest | €1.94 million (EU €0.4 million; GEF €1.0 million; FAO €0.18 million; Budget €0.36 million). | 2026–2029 | <p>Reduction of burnt area (10% by 2029, with a target of 30% by 2035)</p> <p>Report on the implementation of the Disaster Risk Reduction Strategy</p> |

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|     |                                        | VOC, NH <sub>3</sub> and PM2.5).                                                                                                                                                                                                                                                                                                                                                                 | Management Company                                                              |                |           |                                                                                                                                                |
|-----|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 25. | New RES power plants (wind, solar)     | Objective 1:<br>Improvement of air quality<br>1.A – reduction of concentrations of suspended particles and benzo(a)pyrene content in the Northern air quality zone;<br>1.B – reduction of benzo(a)pyrene content in suspended particles in the Central air quality zone;<br>1.C – reduction of emissions of air pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM2.5). | Distribution system operator, Private investors, local self-governments         | €33 million    | 2026–2029 | Expected emission reductions: NO <sub>x</sub> – 0.08 kt, NMVOC – 0.73 kt, SO <sub>2</sub> – 0.2 kt, NH <sub>3</sub> – 0.01 kt, PM2.5 – 0.69 kt |
| 26. | RES auctions and additional capacities | Objective 1:<br>Improvement of air quality<br>1.A – reduction of concentrations of suspended particles and benzo(a)pyrene content in the Northern air quality zone;<br>1.B – reduction of benzo(a)pyrene content in suspended particles in the Central air quality zone;<br>1.C – reduction of emissions of air pollutants (NO <sub>x</sub> , SO <sub>2</sub> , VOC, NH <sub>3</sub> and PM2.5). | <b>Distribution system operator</b> , Private investors, local self-governments | €1,500 million | 2026–2029 | Expected emission reductions: NO <sub>x</sub> – 0.1 kt, NMVOC – 0.97 kt, SO <sub>2</sub> – 0.2 kt, NH <sub>3</sub> – 0.01 kt, PM2.5 – 0.99 kt  |

## 7. AIR QUALITY PLANS

Air quality plans for the three air quality zones defined in Montenegro (see Chapter 2) have been prepared in accordance with the Law on Air Protection, taking into account the novelties introduced by the new EU Directive on cleaner air for Europe (EU) 2024/2881, including the content of the plan, to the extent possible in line with data availability.

### 7.1 AIR QUALITY PLAN FOR THE NORTHERN ZONE

#### 7.1.1 Location of pollution exceedances (region, municipality, monitoring site)

The Northern air quality zone covers the northern region of Montenegro and includes the following municipalities: Andrijevica, Berane, Bijelo Polje, Gusinje, Kolašin, Mojkovac, Petnjica, Plav, Plužine, Pljevlja, Rožaje, Šavnik and Žabljak, in accordance with the Regulation on establishing a network of monitoring sites for air quality monitoring, which defines air quality zones in Montenegro.

Within the Northern air quality zone, air quality is continuously monitored at three monitoring sites:

**Table 6: Monitoring sites in the Northern air quality zone**

| No. | Monitoring site            | Zone     |  | Type of monitoring site | Pollutants monitored                                                                                                                             |
|-----|----------------------------|----------|--|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Pljevlja – Gagovića imanje | Northern |  | UB                      | NO, NO <sub>2</sub> , NO <sub>x</sub> , SO <sub>2</sub> , CO, PM <sub>2.5</sub> , PM <sub>10</sub> (Pb, As, Cd, Ni and BaP in PM <sub>10</sub> ) |
| 2.  | Gradina                    | Northern |  | RB                      | NO, NO <sub>2</sub> , NO <sub>x</sub> , SO <sub>2</sub> , O <sub>3</sub> , CH <sub>4</sub> , THC and Hg                                          |
| 3.  | Bijelo Polje               | Northern |  | UB                      | NO, NO <sub>2</sub> , NO <sub>x</sub> , CO, PM <sub>2.5</sub> , PM <sub>10</sub> (Pb, As, Cd, Ni and BaP in PM <sub>10</sub> )                   |

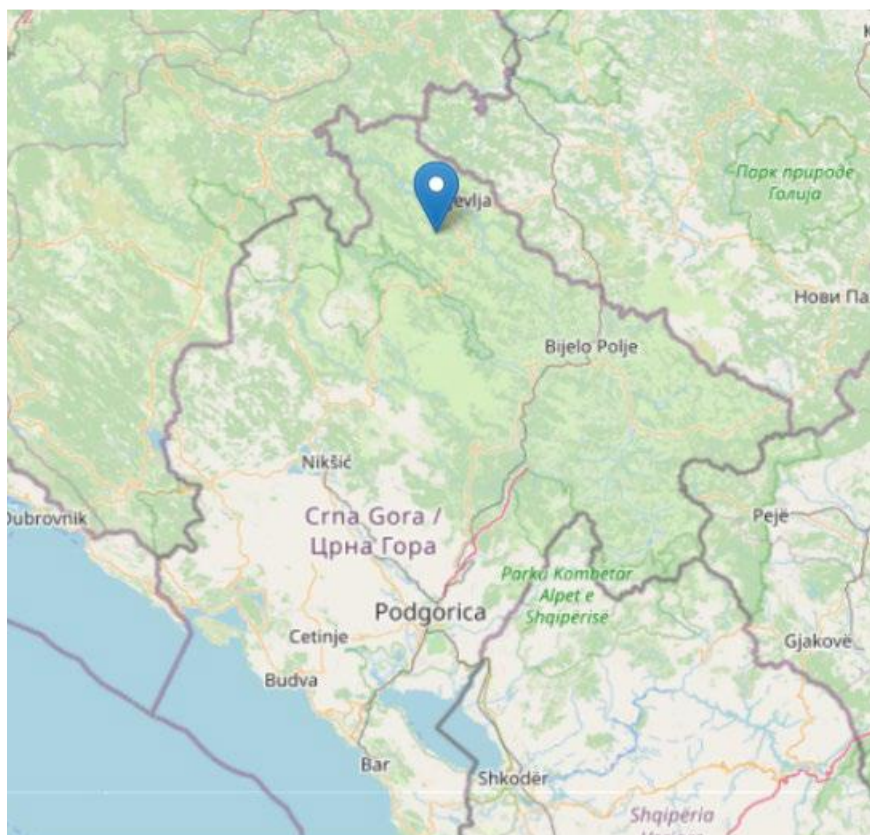
In the Northern air quality zone, the limit values for suspended particles PM<sub>10</sub> and PM<sub>2.5</sub>, as well as the target value for benzo(a)pyrene contained in these particles, have been exceeded. Exceedances were recorded at the monitoring sites in Pljevlja and Bijelo Polje. At the Gradina monitoring site, which is classified as a rural background monitoring site, these pollutants are not monitored, and no exceedances of the monitored parameters have been recorded.

***Table 7: Coordinates of monitoring sites in the Northern air quality zone***

| No. | Location                   | Longitude       | Latitude        | Altitude (m) |
|-----|----------------------------|-----------------|-----------------|--------------|
| 1.  | Pljevlja (Gagovića imanje) | 43°21'25.84''   | 19°20'56.94''   | 792          |
| 2.  | Bijelo Polje (Nikoljac)    | 43°01'46.0992'' | 19°44'33.0432'' | 572          |

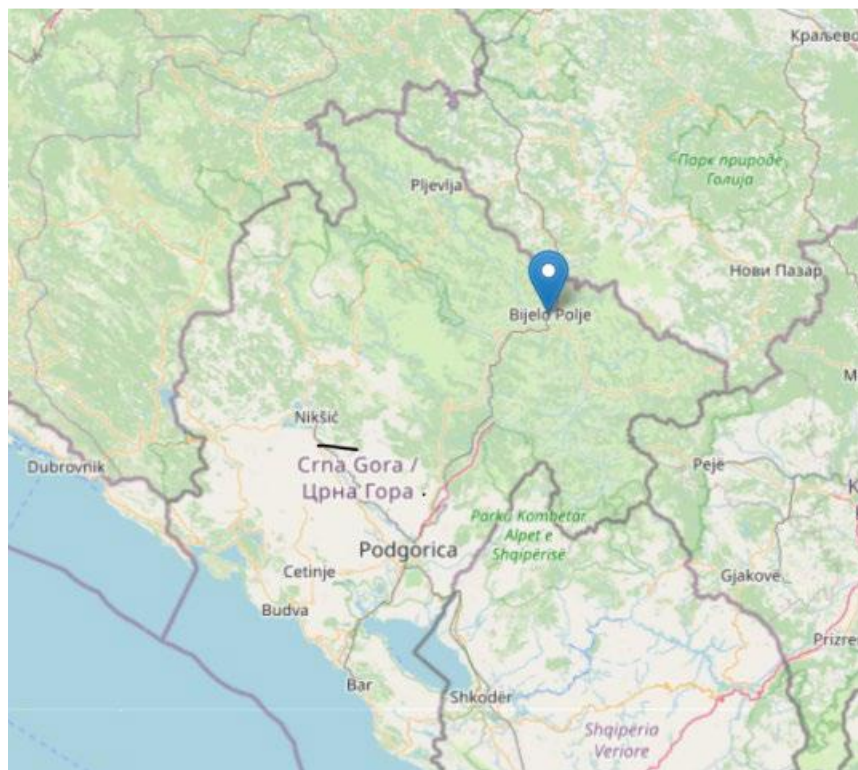
Maps showing the locations of the monitoring stations are presented in Illustrations 2 and 3 and are available in interactive form on the Environmental Protection Agency portal:

***Illustration 4: Monitoring site Pljevlja***



Source: Environmental Protection Agency, <https://www.epa.org.me/vazduh/stanica/4>

**Illustration 5: Monitoring site Bijelo Polje**



Source: Environmental Protection Agency, <https://www.epa.org.me/vazduh/stanica/11>

### 7.1.2 General information

In accordance with the Regional Development Strategy of Montenegro, the Northern Region covers slightly more than half of the total territory of Montenegro and, according to the 2020 estimate, is home to approximately one quarter of the country's population. The region possesses the largest share of Montenegro's total hydropower potential, the entirety of its coal reserves, around 67% of arable land, 71% of timber resources, nearly 70% of livestock, almost all reserves of lead and zinc, as well as resources for the development of winter and eco-tourism and the production of organic food and food with protected geographical origin. Despite its abundant natural resources and considerable potential for the development of all forms of tourism, the Northern Region is characterised by the low level of development of local self-government units, significant out-migration of the population — particularly younger and educated residents — and the highest risk of poverty.

From the perspective of air quality monitoring, the Northern Zone is climatically characterised by long and severe winters, resulting in a pronounced need for space heating for most of the year. Recorded exceedances of concentrations of suspended particulate matter and the benzo(a)pyrene contained within these particles are seasonal in nature and occur during the winter months. Both monitoring sites where exceedances have been recorded are located in

permanently built-up urban areas; in Pljevlja, air quality is strongly influenced by industry (the Pljevlja Thermal Power Plant and the coal mine). In Bijelo Polje, the monitoring site is located in the urban core where most administrative buildings and households use solid fuels for heating. Although concentrations of pollutants are expected to be lower in other parts of this zone with lower population density, they nevertheless exceed the levels recommended by the World Health Organisation that are considered safe for human health.

### **Territory**

The total area of the municipalities belonging to the Northern Air Quality Zone amounts to 7,304 km<sup>2</sup>. This territory includes 13 municipalities (Andrijevica, Berane, Bijelo Polje, Gusinje, Kolašin, Mojkovac, Petnjica, Plav, Plužine, Pljevlja, Rožaje, Šavnik and Žabljak), of which the municipalities of Pljevlja (1,343 km<sup>2</sup>) and Bijelo Polje (923 km<sup>2</sup>) are the largest in terms of area.

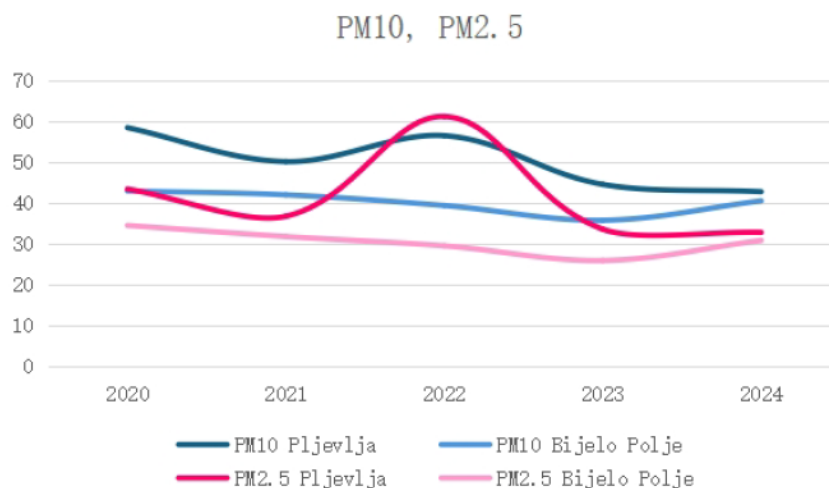
### **Population**

According to the most recent population census (2023), a total of 152,590 inhabitants live within the zone. The most populous municipality in northern Montenegro is Bijelo Polje, with 38,662 inhabitants, while the municipality of Pljevlja has 24,134 inhabitants, meaning that around 40% of the total population of the Northern Air Quality Zone lives in these two municipalities.

### **Concentrations of pollutants and population exposure**

According to the latest indicator report on the state of the environment, residents of the Northern Air Quality Zone were exposed to the highest number of days with exceedances of the daily mean concentration of PM10 particles above the permitted value (28.68%). During the period 2017–2020, the number of days with exceedances exceeded 100 each year.

**Figure 10: Mean annual concentrations of particulate matter PM10 and PM2.5 in Pljevlja and Bijelo Polje (2020–2024)**



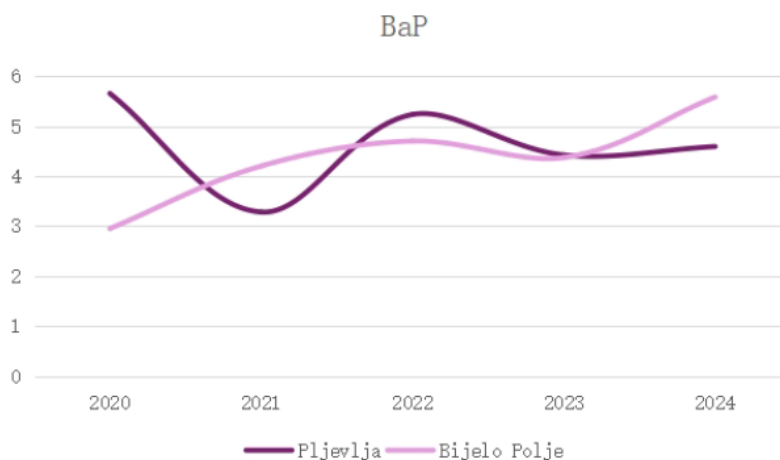
The graphical presentation shows that mean annual concentrations of suspended particulate matter in Pljevlja are higher than those in Bijelo Polje, which is not influenced by significant industrial activities.

In 2024, the mean annual PM<sub>10</sub> concentrations amounted to 42.74 µg/m<sup>3</sup> in Pljevlja and 40.49 µg/m<sup>3</sup> in Bijelo Polje. Although these values are close to the annual limit value of 40 µg/m<sup>3</sup>, they indicate exceedances of daily mean values during the winter period and represent a major challenge for achieving the halved limit values that will apply from 2030 in accordance with the new European standards.

The situation is, as expected, very similar with regard to finer particles (PM<sub>2.5</sub>). In Pljevlja, the mean annual value in 2024 was 32.76 µg/m<sup>3</sup>, and in Bijelo Polje 30.78 µg/m<sup>3</sup>, representing a significant exceedance of the annual mean limit value of 20 µg/m<sup>3</sup> and a major challenge for achieving the halved limit value (10 µg/m<sup>3</sup>) after 2030.

The benzo(a)pyrene content in PM particles in 2024 amounted to 4.59 ng/m<sup>3</sup> in Pljevlja and 5.58 ng/m<sup>3</sup> in Bijelo Polje, which greatly exceeds the prescribed target value of 1 ng/m<sup>3</sup> and indicates the fossil origin of suspended particulate matter.

***Figure 11: Benzo(a)pyrene content in PM particles in Pljevlja and Bijelo Polje (2020–2024)***



### **7.1.3 Competent authorities**

The authority responsible for coordination and oversight of the implementation of this Strategy, including the air quality plans at zone level, is the Ministry of Ecology, Sustainable Development and Northern Development.

Local self-government units within this zone are required to elaborate and plan the implementation of pollution reduction measures within their Local Environmental Action Plans, as well as to plan and implement energy efficiency measures.

The Ministry of Energy and Mining is responsible for the implementation of the National Energy and Climate Plan, the implementation of which will contribute to the reduction of air pollution.

The Eco Fund plays an important role in the implementation of certain measures through the co-financing of projects, programmes and other activities the scope of the Eco Fund's mandate.

In the selected measures for reducing air pollution in the Northern region, a significant contribution is made by EPCG, as the initiator, financier and implementer of specific measures. Although the National Council for a Just Transition has a role primarily focused on mitigating the socio-economic consequences of the decarbonisation of the energy sector, its role in shaping the future sustainable development of the Northern region is of considerable importance.

#### **7.1.4 Origin of pollution, taking into account data from the air pollutant emission inventory and data from the Air Pollution Control Programme**

The key sources of emissions of pollutants whose concentrations have been exceeded are presented in the table below, which contains data on total emissions in kilotonnes and international toxic equivalents (I-TEQ) (for benzo(a)pyrene), as well as the percentage share of key sectors in total emissions. These data are indicating that household heating is the key sector requiring action, as it predominantly contributes to total emissions of the relevant pollutants, accounting for 84% of PM2.5 emissions, 79% of PM10 emissions and 99% of the benzo(a)pyrene content in suspended particles. In the terminology and methodology of emission inventory preparation, this sector is designated as 1A4bi and primarily refers to the combustion of wood for heating in individual household stoves.

***Table 8: Key sources of pollutant emissions***

| <b>Key sectors / pollutants</b>                        | <b>PM2.5 (kt)</b> | <b>PM10 (kt)</b> | <b>BaP g/I-TEQ*</b> |
|--------------------------------------------------------|-------------------|------------------|---------------------|
| <b>Electricity generation</b>                          | 6.08              | 6.58             | /                   |
|                                                        | 3%                | 4%               | /                   |
| <b>Road transport – heavy goods vehicles and buses</b> | 0.19              | 0.19             | /                   |
|                                                        | 3%                | 3%               | /                   |
| <b>Household heating</b>                               | 5.08              | 5.22             | 0.83                |
|                                                        | <b>84%</b>        | <b>79%</b>       | <b>99%</b>          |
| <b>Total</b>                                           | 6.08              | 6.58             | 0.84                |
| <b>Share of key sectors in total emissions</b>         | 90%               | 96%              | 99%                 |

\*The national inventory shares presented above identify the principal emitting sectors at national level, but they do not constitute source apportionment of ambient concentrations for individual zones within the meaning of Directive (EU) 2024/2881, which requires additional modelling and receptor analysis, not currently available.

#### **7.1.5 Description of the baseline scenario on which the air quality plan is based, in order to present the consequences of inaction, including projected emission and concentration trends**

**7.1.5.1 Identification of measures for reducing air pollution that may be considered, and detailed information on those measures**

In accordance with the obligation to align the Air Pollution Control Programme with the National Energy and Climate Plan, as well as the requirement to harmonise air quality plans with the Air Pollution Control Programme, a number of measures (out of a total of 56 measures) from the NECP were considered as potential synergies within this segment of air protection policy. These measures could contribute to a rapid improvement in air quality, the enhancement of public health in line with the European Green Deal, and the attainment of stringent standards that await Montenegro as a future Member State of the European Union.

The measures considered are presented in the table below:

***Table 9: Measures considered from the NECP***

| <b>No.</b> | <b>Policies and measures</b>                                                                       | <b>Target sector</b>                     |
|------------|----------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>1</b>   | Reconstruction of the Pljevlja Thermal Power Plant (TPP) and future operation plan                 | Energy industry / electricity generation |
| <b>2</b>   | New renewable energy power plants                                                                  | Energy industry / electricity generation |
| <b>3</b>   | Additional renewable energy power plants                                                           | Energy industry / electricity generation |
| <b>4</b>   | Renewable energy auctions                                                                          | Energy industry / electricity generation |
| <b>5</b>   | Development of CP mechanisms (EU ETS)                                                              | Energy industry / electricity generation |
| <b>6</b>   | Rehabilitation of small hydropower plants (increased efficiency)                                   | Energy industry / electricity generation |
| <b>7</b>   | Development of decentralised energy generation (medium-voltage distribution connection)            | Energy industry / electricity generation |
| <b>8</b>   | Additional development of decentralised energy generation (medium-voltage distribution connection) | Energy industry / electricity generation |
| <b>9</b>   | Promotion of e-mobility                                                                            | Transport                                |
| <b>10</b>  | Introduction of a mandatory share of biofuels in fuel supply                                       | Transport                                |
| <b>11</b>  | Prosumers in industry                                                                              | Industry                                 |
| <b>12</b>  | Biofuels in industry                                                                               | Industry                                 |

### ***Air Quality Management Strategy for the period 2026–2029***

|           |                                                                                                                             |                                   |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>13</b> | Financial incentives for introducing hybrid special machinery in the industrial sector                                      | Industry                          |
| <b>14</b> | Development of decentralised energy generation by prosumers                                                                 | Residential/commercial sector     |
| <b>15</b> | Additional development of decentralised energy generation by prosumers                                                      | Residential/commercial sector     |
| <b>16</b> | Support for organic agricultural production                                                                                 | Agriculture                       |
| <b>17</b> | Support for manure management                                                                                               | Agriculture                       |
| <b>18</b> | Reduction of bio-waste in municipal waste                                                                                   | Waste                             |
| <b>19</b> | Increase in sewerage connection rate (target 93% by 2035)                                                                   | Waste                             |
| <b>20</b> | District heating in Pljevlja                                                                                                | Energy industry / heat production |
| <b>21</b> | Ban on import of old vehicles (Euro 4 or lower)                                                                             | Transport                         |
| <b>22</b> | Modal shift of passenger transport to public bus transport                                                                  | Transport                         |
| <b>23</b> | Modal shift of passenger and freight transport to rail                                                                      | Transport                         |
| <b>24</b> | Development and implementation of the regulatory framework for energy efficiency in buildings                               | Residential / public / commercial |
| <b>25</b> | Increased energy efficiency in public buildings                                                                             | Public                            |
| <b>26</b> | Implementation of energy efficiency measures in public infrastructure                                                       | Public                            |
| <b>27</b> | Financial incentives for citizens/private households (for investments in energy efficiency and reduction of energy poverty) | Residential                       |

#### **7.1.5.2 Selected measures and their expected effect in achieving compliance**

(a) a list of selected measures, including a list of information (such as modelling results and assessments of measures) for achieving the relevant air quality standards in accordance with Annex I; where appropriate, if the list of measures referred to in point 6(a) includes measures with a high potential to improve air quality that were not selected, an explanation of the reasons why they were not chosen;

Taking into account the key sources of pollution explained in the previous section, and with reference to the list of measures considered, priority has been given to those measures associated with reducing emissions of suspended particles from the household heating sector.

These measures primarily include the following:

***Table 10: Selected measures from the NECP***

| <b>No.</b> | <b>Measures to be implemented under the NECP</b>                                                                            | <b>Sector</b>                     |
|------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>1</b>   | Financial incentives for citizens/private households (for investments in energy efficiency and reduction of energy poverty) | Residential                       |
| <b>2</b>   | Development and implementation of the regulatory framework for energy efficiency in buildings                               | Residential / public / commercial |
| <b>3</b>   | Increased energy efficiency in public buildings                                                                             | Public sector                     |
| <b>4</b>   | District heating in Pljevlja                                                                                                | Energy industry / heat production |
| <b>5</b>   | Development of decentralised energy generation by prosumers                                                                 | Residential/commercial sector     |
| <b>6</b>   | Additional development of decentralised energy generation by prosumers                                                      | Residential/commercial sector     |

#### **7.1.6 Brief description of measures taken from the NECP**

##### **7.1.6.1 Financial incentives for citizens/private households (investments in energy efficiency)**

The residential sector accounts for more than 36% of total energy demand and, together with the transport sector, represents the most energy-intensive sector in the country. The average energy intensity of the residential sector is 169 kWh/m<sup>2</sup> per year. There are three climatic zones, and energy intensity varies across them. In order to achieve energy efficiency targets, measures should be directed towards the most energy-intensive sectors. Space heating represents the dominant share of energy consumption in the residential sector (60%). Electricity and wood are almost the only fuels used in the sector (99% share). Although the share of wood consumption is higher (55%), it has been gradually declining in recent years. Wood is predominantly used for space heating (77%), while the remainder is used for cooking purposes. The energy efficiency of these technologies is very low. In addition, almost 70% of residential buildings were constructed before 2000, that is, prior to the introduction of modern energy efficiency standards.

The objective of this measure is to provide financial support mechanisms for individuals to invest in energy efficiency and renewable energy sources. This includes the introduction of dedicated

national and local subsidy programmes for energy savings in private households and the use of renewable energy sources. A household subsidy programme aimed at improving energy efficiency is currently being implemented. The total programme budget amounts to €8.8 million, of which €2.8 million has been allocated to the Municipality of Pljevlja, while the remaining €6 million is intended for other municipalities across the country. The maximum grant per beneficiary is €10,000, while amounts for individual measures range from €2,000 to €6,000. The programme is implemented through cooperation between the Ministry of Energy and Mining and the Eco Fund, which acts as the implementing body, with technical support from the United Nations Development Programme (UNDP). It is important to ensure the continuation of similar support programmes in the coming period in order to further renovate the residential sector.

Entities responsible for implementation: the Ministry of Energy and Mining, the Eco Fund, locally qualified distributors and installers of energy efficiency equipment, as well as local commercial banks.

Costs: under the current household energy efficiency incentive programme, €8.8 million has been allocated to support the household sector. Additional funding will need to be secured to continue the support programme in the forthcoming period. For the period up to 2027, implementation should be guided by the indicators set out in the Reform Agenda for the period 2024–2027.

#### 7.1.6.2 Development and implementation of the regulatory framework for energy efficiency in buildings

The NECP includes a package of measures relating to energy efficiency in the buildings sector:

- ✓ Development and implementation of the regulatory framework for energy efficiency in buildings
- ✓ Increased energy efficiency in public buildings
- ✓ Implementation of energy efficiency measures in public infrastructure

For the implementation of these measures, a legal framework aligned with relevant European legislation has been established, along with the Study on Improving Energy Efficiency in Buildings in Montenegro. A building inventory has been developed, reference buildings by category have been defined, and energy classes have been established, enabling the finalisation of the national software for calculating the energy performance of buildings and their certification. Amendments have also been introduced to the obligations of local municipalities and large legal entities (with more than 500 employees), requiring them to prepare programmes for improving energy efficiency, report annually on their implementation, and carry out energy audits of their facilities at least once every four years.

Entities responsible for implementation: public administration (Ministry of Energy and Mining, local self-governments), citizens, private companies/owners of commercial buildings, and investors in residential and commercial buildings.

#### 7.1.6.3 Increased energy efficiency in public buildings

Public buildings account for 9% of the total energy demand in the service sector. Electricity is the dominant fuel used (64%), but extra light fuel oil (15%), coal (15%), wood (6%), and negligible use of LPG are also present. Buildings are characterised by low energy efficiency and, in certain cases, very poor comfort conditions. There is a necessity for significant improvements to building envelopes, heating and cooling systems, domestic hot water preparation, and lighting, while it is also necessary to introduce energy management systems, integrate renewable energy sources, and promote behavioural and operational changes. Since public buildings form part of the public administration, energy efficiency measures are considerably easier to implement than in the residential sector due to fewer financial and organisational challenges.

The Government has prepared a Plan for the Reconstruction of State Administrative Buildings for the period 2024–2026. Works on educational facilities in Tuzi, Kotor, Nikšić, Cetinje and Bar have been completed. Approximately 40% of the budget has been spent. Projects for public buildings and schools in Podgorica, Plav, Gusinje, Rožaje and Nikšić are in the development and preparation phase.

Entities responsible for implementation: public administration (Ministry of Energy and Mining, bodies responsible for managing public buildings at the local self-government level).

Costs: the total budget amounts to EUR 80 million.

#### 7.1.6.4 District heating in Pljevlja

The development of district heating in Pljevlja will follow the environmental reconstruction of Pljevlja Thermal Power Plant, while all preparatory works related to connection to the heating system will be completed during the reconstruction period. The heating project will (temporarily) address the long-standing problem of air pollution. Residents of Pljevlja use around 80% of the total coal consumed in the residential sector nationwide for heating purposes. During the winter season, the air in Pljevlja is burdened with pollutants that are mainly by-products of lignite combustion in individual, largely inefficient stoves used in approximately 5,000 local households.

The project includes the construction of a heat source, as well as the primary and secondary district heating network. In the first phase, the construction of the primary hot water pipeline will create conditions for supplying six of the largest boiler houses in the town centre. This will be achieved through the uncontrolled extraction of steam from the turbine unit of TPP Pljevlja, with a capacity of 10 MW, immediately after completion of the environmental reconstruction. In addition, the construction of 20 connections to the primary hot water pipeline of appropriate diameter for all consumption zones will create the conditions for the second phase and regulated steam extraction from the turbine unit of TPP Pljevlja, enabling further development of the town heating system with a heat demand of 44 MW.

Given the evident dependence of this heating system on the operation of TPP Pljevlja, and in light of the planned phase-out of lignite use and the future decommissioning of the plant, it is necessary to identify a long-term sustainable heating solution for the town.

The first phase of district heating development, which involves the construction of approximately 6.5 km of the primary pipeline, is nearing completion. The second phase, which according to the NECP should be completed by 2030, relates to creating the conditions for the development of heating across all consumption zones in Pljevlja, with capacities of up to 2×22 MW on the same pipeline constructed in the first phase.

Entities responsible for implementation: local self-government, EPCG.

Costs: the total project budget amounts to EUR 23 million. EPCG has provided EUR 2.5 million. For phases I.1 and I.2, EUR 8.3 million has already been allocated. The local authority will cover the costs of expropriation.

#### 7.1.6.5 Development of decentralised energy generation by prosumers and additional development of decentralised energy generation by prosumers

The development of decentralised generation has become an indispensable part of the energy transition and has gained wide application in Montenegro. Thanks to the Solari+ project, a large number of households and commercial buildings have opted to install photovoltaic systems on the roofs of their buildings, thereby achieving personal benefits such as reduced electricity bills and energy independence, as well as benefits for the wider community, including reduced greenhouse gas emissions (GHG) and environmental protection.

EPCG is the main driving force of the development of the prosumer concept in Montenegro. The company provides all necessary technical services and financing (in the form of a loan repaid through electricity bills, whereby a portion of the bill represents the investment repayment). At present, this concept is primarily focused on the residential sector, but it can be effectively applied to larger consumers as well. There is strong consumer interest (a potential 26,000 consumers), and total installed capacity is expected to reach close to 250 MW by 2030. Plans exist for further integration of consumers, along with the need to develop a methodology for calculating grid connection capacity, as well as to include battery energy storage systems as a mandatory component of installations for users.

Entities responsible for implementation: EPCG.

Costs: the total project budget amounts to EUR 220 million, distributed over eight years (2023–2030).

#### 7.1.6.6 Other measures

In addition to the measures listed above that have a direct impact on reducing air pollution, it is necessary to consider policies and measures that may indirectly influence their implementation or constitute preconditions for contextualising the selected measures. This primarily relates to the process of a just transition in the Pljevlja coal region and the strategic mitigation of energy poverty, which is a key cause of air pollution from household heating in the region.

#### 7.1.6.7 Preparation of the Just Transition Plan for the Pljevlja coal region

Through defined pillars such as economic diversification, social inclusion, environmental remediation, institutional governance and financial mobilisation, the Plan builds upon existing strategic documents and directly contributes to achieving the objectives of the NECP. The Just Transition Plan should include a strategic approach to air protection by addressing the future heating model in Pljevlja and the development of economic activities that will positively affect air quality.

The National Council for Just Transition (NCJT) has been established, chaired by the Minister of Energy and Mining, and represents the central body for guiding and coordinating the transition process in line with national development objectives, European standards and the needs of local communities — particularly Pljevlja, which is at the centre of this process.

The expected completion date of the Plan is 2027.

Entities responsible for implementation: Ministry of Energy and Mining, Municipality of Pljevlja, business entities, NGOs and trade unions in the field of social transition.

#### 7.1.6.8 Methodology for defining energy-poor groups and measures to reduce energy poverty

The protection of vulnerable consumers and the reduction of energy poverty are obligations assumed under the Third Energy and Climate Package adopted by the European Parliament, which includes subsidising heating costs for vulnerable consumers and improving insulation and the energy performance of buildings, as well as the use of efficient and health-safe local heating appliances. By adopting the new Energy Law, the European Directive on common rules for the internal market for electricity (No. 2019/944) has been transposed, thereby introducing, for the first time in national legislation, a definition of energy poverty. Energy poverty is a condition in which a household lacks access to essential energy services that ensure decent standards of living and health, including adequate heating and cooling, hot water, lighting and energy to power household appliances. The Energy Community Secretariat has prepared a study on addressing energy poverty in the Contracting Parties of the Energy Community, which provides guidance on how to measure the level of energy poverty and design appropriate policies for its reduction. In accordance with this, it is necessary to undertake activities to collect data relevant for monitoring energy poverty and combating this phenomenon in Montenegro.

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The implementation of policies to reduce energy poverty would generate multiple benefits, both for affected households and for the community as a whole:

- ✓ improvement in quality of life and human health,
- ✓ reduced use of individual heating appliances such as solid-fuel stoves and furnaces, thereby directly reducing air pollution both outdoors and indoors,
- ✓ reduced use of low-quality and technologically outdated devices,
- ✓ reduced household energy expenditure as a share of total income.

Although some of the proposed measures are aligned with the existing framework and complement the measures proposed in the 4th Energy Efficiency Action Plan (EEAP), their accessibility to energy-poor households requires consideration of vulnerability criteria and the provision of higher co-financing rates. In addition, unlike measures intended for the general public, the design of schemes aimed at reducing energy poverty requires the development and establishment of specific support systems. These systems should be elaborated in detail within the Programme for the Mitigation of Energy Poverty. The main objective of such support systems would be to identify persons in need of assistance and to provide support in the process of applying for and using available assistance measures.

Entities responsible for implementation: Ministry of Energy and Mining, Ministry of Social Welfare, Family Care and Demography, Eco Fund, MONSTAT.

### **7.1.6.9 Use of derogation mechanisms and preparation of a roadmap for achieving stricter standards**

Finally, although the objective of this Air Quality Plan is to achieve the currently applicable limit values for pollutants whose concentrations are exceeded (PM<sub>10</sub>, PM<sub>2.5</sub> and BaP), it is necessary to act in a timely manner towards reducing air pollution in line with the new, more stringent standards introduced by Directive 2024/2881, which has not yet been transposed into Montenegrin legislation. Article 18 of this Directive allows Member States to postpone the deadline for compliance with limit values for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), nitrogen dioxide, benzene or benzo(a)pyrene until 1 January 2040 if this is justified by the dispersion characteristics of a specific location, limiting orographic conditions, unfavourable climatic conditions or transboundary transport of pollution, or if the required reductions can only be achieved by replacing a significant share of existing household heating systems that are the source of pollution or cause exceedances. In this context, Montenegro, in the accession process, may request the application of this mechanism, with the obligation to prepare a roadmap for achieving the limit values during the period of postponed application.

### **7.1.6.10 Local Environmental Protection Plans**

**The obligation to prepare Local Environmental Protection Plans** is established by Article 37 of the Law on the Environment, which requires local self-government units to elaborate, within the plans, environmental protection measures for their respective territories, in accordance with local specificities and the characteristics of the area for which the plan is adopted. The plan

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establishes objectives and tasks of importance for environmental protection and sustainable development at the local level.

The Municipality of Pljevlja has updated its Air Quality Plan within the Local Environmental Protection Plan for the period 2022–2026 and, upon the expiry of this period, is required to align the local plan with the Air Quality Plan for the Northern Zone in the segment relating to air quality, elaborating the plan with additional measures of local significance. Other municipalities within the Northern Air Quality Zone are required to adopt appropriate Local Environmental Protection Plans (particularly the Municipality of Bijelo Polje) and harmonise them with this plan. Guidance for defining air protection measures at the local level can be found in the Manual prepared by the Ministry of Ecology, Sustainable Development and Northern Development in cooperation with the Swedish Environmental Protection Agency, which should be translated into Montenegrin. The mandatory content of air quality plans and action plans is provided in Annex 1.

This plan does not include the measure of the reconstruction of the Pljevlja Thermal Power Plant, which has a high potential for reducing sulphur dioxide and nitrogen dioxide emissions, as the measure has already been implemented and the trial operation of the plant is ongoing, including testing of the denitrification system, while testing of the flue gas desulphurisation system is expected. In the event that increased emissions of these pollutants occur during the trial operation period or after the expiry of the period foreseen for trial operation, the applicable legislation must be consistently enforced, including suspending the operation of the plant in accordance with the Law on Industrial Emissions.

## **7.2 AIR QUALITY PLAN FOR THE CENTRAL ZONE**

### **7.2.1 Location of pollution exceedances (region, municipality, monitoring site)**

The Central Air Quality Zone covers the central region of Montenegro and includes the following municipalities: Podgorica, Nikšić, Danilovgrad and Cetinje, in accordance with the Decree on the establishment of the network of air quality monitoring stations, which defines the air quality zones in Montenegro.

Within the Central Air Quality Zone, air quality is continuously monitored at four monitoring sites:

***Table 11: Monitoring sites in the Central air quality zone***

| <b>No.</b> | <b>Monitoring site</b> | <b>Zone</b> | <b>Type of monitoring site</b> | <b>Pollutants measured</b>                                                                                                                 |
|------------|------------------------|-------------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>   | Podgorica              | Central     | UT                             | NO, NO <sub>2</sub> , NO <sub>x</sub> , CO, C <sub>6</sub> H <sub>6</sub> , PM <sub>10</sub> (Pb, As, Cd, Ni and BaP in PM <sub>10</sub> ) |

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|          |             |         |    |                                                                                                                                                                   |
|----------|-------------|---------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2</b> | Podgorica   | Central | UB | SO <sub>2</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> (Pb, As, Cd, Ni and BaP in PM <sub>10</sub> )                                                              |
| <b>3</b> | Gornje Mrke | Central | RB | NO, NO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , CH <sub>4</sub> and THC                                                                                  |
| <b>4</b> | Nikšić      | Central | UB | NO, NO <sub>2</sub> , NO <sub>x</sub> , CO, O <sub>3</sub> , SO <sub>2</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> (Pb, As, Cd, Ni and BaP in PM <sub>10</sub> ) |

In the Central air quality zone, the target value for benzo(a)pyrene contained in suspended particulate matter has been exceeded. The exceedance was recorded at all three monitoring sites where this parameter is measured, namely at two monitoring sites in Podgorica and the monitoring site in Nikšić.

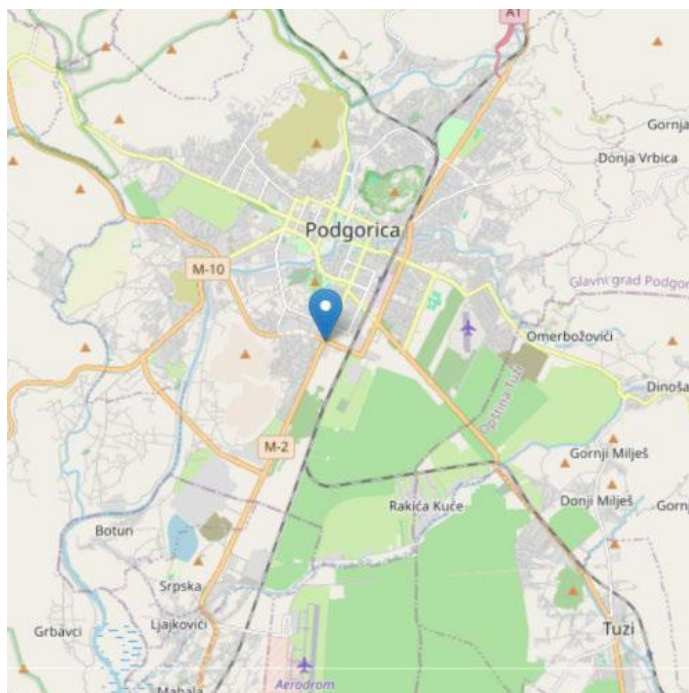
***Table 12: Coordinates of monitoring sites in the Northern air quality zone***

| <b>No.</b> | <b>Location</b>           | <b>Longitude</b>  | <b>Latitude</b>   | <b>Altitude (m)</b> |
|------------|---------------------------|-------------------|-------------------|---------------------|
| <b>1</b>   | Podgorica UT (roundabout) | 42° 25' 58.2024'' | 19° 15' 17.9496'' | 49                  |
| <b>2</b>   | Podgorica UB (Block V)    | 42° 26' 53.7288'' | 19° 14' 26.9016'' | 49                  |
| <b>3</b>   | Nikšić                    | 42° 46' 52.3812'' | 18° 56' 34.602''  | 628                 |

Maps showing the locations of the monitoring sites are presented in Illustrations 6, 7 and 8 and are available in an interactive format on the portal of the Environmental Protection Agency.

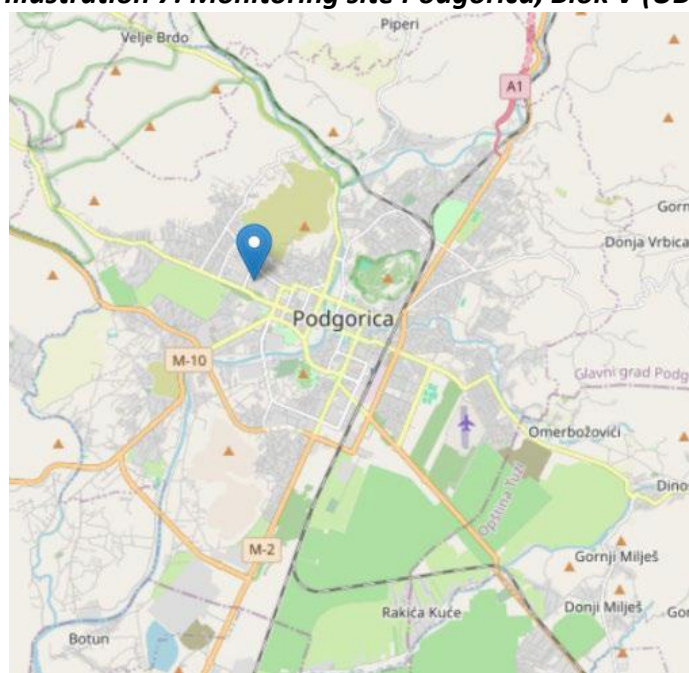
***Illustration 6: Monitoring site Podgorica, roundabout, junction of Georgija Žukova Boulevard and Zetskih vladara (UT)***

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Source: Environmental Protection Agency, <https://www.epa.org.me/vazduh/stanica/1>

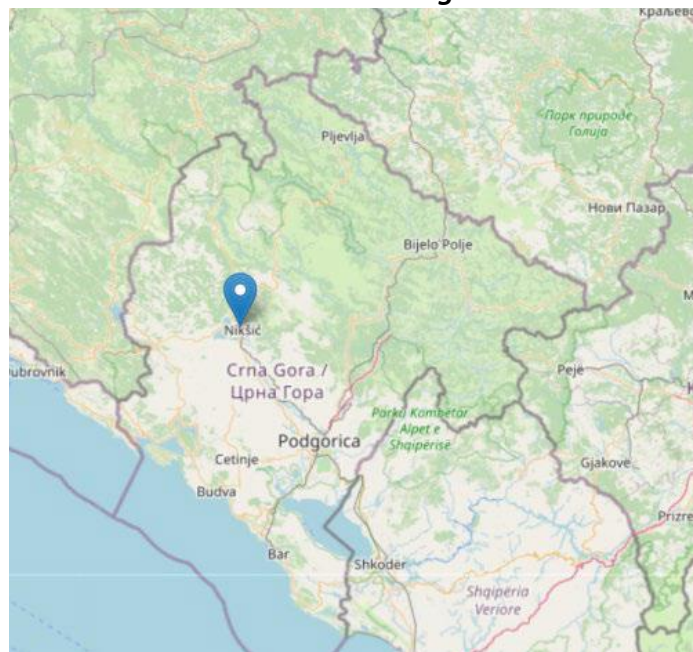
***Illustration 7: Monitoring site Podgorica, Blok V (UB)***



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Source: Environmental Protection Agency, <https://www.epa.org.me/vazduh/stanica/10>

***Illustration 8: Monitoring site Nikšić***



Source: Environmental Protection Agency, <https://www.epa.org.me/vazduh/stanica/2>

### **7.2.2 General information**

In accordance with the Regional Development Strategy of Montenegro, almost half of the total population of Montenegro lives in the central region, which spatially covers slightly more than one third of the total territory of Montenegro. The central region is experiencing a strong inflow of population from the Northern region, with a population growth rate above the national average, as well as a significant inflow of foreign direct investment. The region contains approximately 22.4% of arable land, 25.5% of timber resources, 30.5% of livestock, and rich deposits of bauxite together with significant hydropower potential. It should also be noted that the most important cultivated agricultural areas are located within the central region. At the same time, the central region represents the university centre of Montenegro. Development to date has been based on the industrial sector, construction, transport and storage, trade and hospitality, and more recently on the development of agricultural production and processing.

From the perspective of air quality monitoring, the central zone is climatically characterised by mild and humid winters and long, dry and hot summers in the Podgorica–Skadar basin and the Bjelopavlići plain. Significantly harsher climatic conditions prevail in the karst fields of Cetinje, Njeguši, Dragalj, Grahovo and Nikšić, which are located at higher altitudes.

Two of the monitoring sites where exceedances have been recorded are sites intended for measuring background pollution in urban areas (UB Podgorica, Block V, and UB Nikšić), while the third monitoring site is intended for monitoring traffic-related pollution in urban areas – UT roundabout Zabjelo (Generala Žukova and Zetskih Vladara) at a location with very heavy traffic.

### **Territory**

The total area of the municipalities belonging to the Central Air Quality Zone amounts to 4,457 km<sup>2</sup>. This territory includes three municipalities (Cetinje, Danilovgrad and Nikšić) and the Capital City of Podgorica. The Municipality of Nikšić is the largest municipality in Montenegro, with an area of 2,087 km<sup>2</sup>.

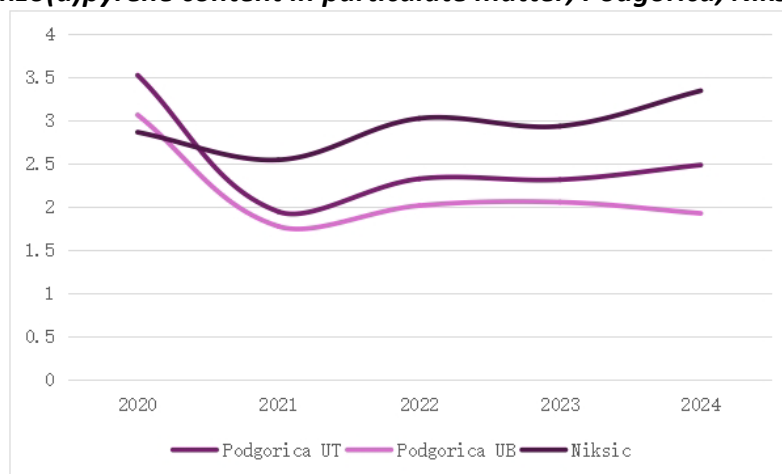
### **Population**

According to the most recent population census (2023), a total of 278,321 inhabitants live within the zone. The concentration of population is associated with the Capital City, where 179,505 inhabitants live, representing 28.3% of the total population of Montenegro.

### **Concentrations of pollutants and population exposure**

The graphical presentation below the text shows that the target value for benzo(a)pyrene content has been exceeded throughout the entire observed period and remains above the target value of 1 ng/m<sup>3</sup>. Concentrations are somewhat higher in Nikšić than in Podgorica and, throughout the entire period, at all monitoring sites they range from 1.77 ng/m<sup>3</sup> to 3.55 ng/m<sup>3</sup>. The average benzo(a)pyrene content in suspended particles in the Central Zone is lower than that recorded in the Northern Air Quality Zone.

**Figure 12: Benzo(a)pyrene content in particulate matter, Podgorica, Nikšić (2020–2024)**



Benzo(a)pyrene (BaP) is a characteristic and most commonly monitored representative of polycyclic aromatic hydrocarbons (PAHs), and is used as their marker because it typically occurs in the highest concentrations and has pronounced toxic, mutagenic and carcinogenic properties.

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It is primarily formed during the incomplete combustion of organic materials, including fossil fuels, biomass and waste.

The most significant processes leading to the formation of benzo(a)pyrene are:

- ✓ incomplete combustion of wood, coal, pellets and other forms of biomass, particularly in individual heating units and boiler rooms without adequate combustion control;
- ✓ combustion of fossil fuels in transport, especially diesel fuel in older vehicles and engines without effective particulate filters;
- ✓ industrial processes such as metallurgy, coke production, refineries and energy generation plants;
- ✓ open burning of waste and agricultural residues;
- ✓ natural sources, such as forest fires (less significant, but relevant during summer periods).

Benzo(a)pyrene binds to PM10 and PM2.5 particles, which is why its presence depends on seasonal factors (highest during the winter period) and the emission structure in specific environments.

### 7.2.3 Competent authorities

The authority responsible for coordinating and supervising the implementation of this Strategy, including air quality plans at the zone level, is the Ministry of Ecology, Sustainable Development and Northern Development.

Local self-government units within this zone are obliged, through their local environmental action plans, to elaborate and plan the implementation of measures to reduce pollution within their territory.

The Ministry of Energy and Mining is responsible for the implementation of the National Energy and Climate Plan, the implementation of which will contribute to reducing pollution.

The Eco Fund plays an important role in the implementation of certain measures through the co-financing of projects, programmes and other activities within its scope of work.

The Ministry of Transport, the Ministry of Interior and other institutions have roles in implementing specific measures within their respective competences.

### 7.2.4 Origin of pollution, taking into account data from the air pollutant emissions inventory and data from the Air Pollution Control Programme

The principal source of benzo(a)pyrene is household heating, which, according to data from the air pollutant emission inventory, contributes 99% of the total emissions of this pollutant. Total benzo(a)pyrene emissions in 2023 amounted to 0.83 g I-TEQ, expressed in international toxic equivalents. In the terminology and methodology of emission inventory preparation, this sector

is designated as 1A4bi and mainly refers to the combustion of firewood for heating in individual household stoves.

## 7.2.5 Description of the baseline scenario on which the air quality plan is based in order to illustrate the consequences of inaction, including projected emission and concentration trends

### 7.2.5.1 Identification of air pollution reduction measures that may be considered, and detailed data on those measures

In accordance with the obligation to align the Air Pollution Reduction Programme with the National Energy and Climate Plan, as well as the obligation to align air quality plans with the Air Pollution Reduction Programme, numerous measures (out of a total of 56 measures) from the NECP were considered as potential synergies within this segment of air protection policy. These measures could contribute to rapid improvements in air quality, improvements in human health in line with the European Green Deal, and the achievement of stricter standards that Montenegro will be expected to meet as a future EU Member State.

The measures considered are presented in the table below:

***Table 13: Measures considered from the NECP***

| <b>No.</b> | <b>Policies and measures</b>                                                                       | <b>Target sector</b>                     |
|------------|----------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>1</b>   | Reconstruction of Pljevlja Thermal Power Plant (TPP) and future operational plan                   | Energy industry / electricity generation |
| <b>2</b>   | New renewable energy power plants                                                                  | Energy industry / electricity generation |
| <b>3</b>   | Additional renewable energy power plants                                                           | Energy industry / electricity generation |
| <b>4</b>   | Renewable energy auctions                                                                          | Energy industry / electricity generation |
| <b>5</b>   | Development of CP mechanisms (EU ETS)                                                              | Energy industry / electricity generation |
| <b>6</b>   | Rehabilitation of small hydropower plants (increased energy efficiency)                            | Energy industry / electricity generation |
| <b>7</b>   | Development of decentralised energy production (medium-voltage distribution connection)            | Energy industry / electricity generation |
| <b>8</b>   | Additional development of decentralised energy production (medium-voltage distribution connection) | Energy industry / electricity generation |

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|           |                                                                                                                             |                                   |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>9</b>  | Promotion of e-mobility                                                                                                     | Transport                         |
| <b>10</b> | Introduction of mandatory biofuel share in fuel supply                                                                      | Transport                         |
| <b>11</b> | Producers–consumers (prosumers) in industry                                                                                 | Industry                          |
| <b>12</b> | Biofuels in industry                                                                                                        | Industry                          |
| <b>13</b> | Financial incentives for introducing hybrid specialised machinery in the industrial sector                                  | Industry                          |
| <b>14</b> | Development of decentralised energy production by producer–consumers (prosumers)                                            | Residential/commercial sector     |
| <b>15</b> | Additional development of decentralised energy production by producer–consumers (prosumers)                                 | Residential/commercial sector     |
| <b>16</b> | Support for organic agricultural production                                                                                 | Agriculture                       |
| <b>17</b> | Support for manure management                                                                                               | Agriculture                       |
| <b>18</b> | Reduction of biowaste in municipal waste                                                                                    | Waste                             |
| <b>19</b> | Increase in connection rate to the sewerage system (target 93% by 2035)                                                     | Waste                             |
| <b>20</b> | District heating in Pljevlja                                                                                                | Energy industry / heat production |
| <b>21</b> | Ban on import of old vehicles (Euro 4 or lower)                                                                             | Transport                         |
| <b>22</b> | Modal shift of passenger transport to public bus transport                                                                  | Transport                         |
| <b>23</b> | Modal shift of passenger and freight transport to rail                                                                      | Transport                         |
| <b>24</b> | Development and implementation of the regulatory framework for energy efficiency in buildings                               | Residential / public / commercial |
| <b>25</b> | Improved energy efficiency in public buildings                                                                              | Public sector                     |
| <b>26</b> | Implementation of energy efficiency measures in public infrastructure                                                       | Public sector                     |
| <b>27</b> | Financial incentives for citizens/private households (for investments in energy efficiency and reduction of energy poverty) | Residential                       |

### 7.2.5.2 Selected measures and their expected effect in achieving compliance

Taking into account the key sources of pollution explained in the preceding text, priority among the measures considered has been given to those related to reducing emissions of suspended particulate matter from the household heating sector. Taking into account not only the current exceedances of the target value for benzo(a)pyrene, but also the need to comply with stricter air quality standards in the future, the Air Quality Plan for the Central Zone also includes measures to reduce air pollution from the transport sector.

First and foremost, these include the following measures:

**Table 14: Selected measures from the NECP**

| No. | Measures to be implemented under the NECP                                                     | Sector                            |
|-----|-----------------------------------------------------------------------------------------------|-----------------------------------|
| 1   | Financial incentives for citizens/private households (investments in energy efficiency)       | Residential                       |
| 2   | Development and implementation of the regulatory framework for energy efficiency in buildings | Residential / public / commercial |
| 3   | Increased energy efficiency in public buildings                                               | Public                            |
| 4   | Development of decentralised energy production by producer–consumers (prosumers)              | Residential/commercial            |
| 5   | Additional development of decentralised energy production by producer–consumers (prosumers)   | Residential/commercial            |
| 6   | Promotion of e-mobility                                                                       | Transport                         |
| 7   | Modal shift of passenger and freight transport to rail                                        | Transport                         |

### 7.2.5.3 Financial incentives for citizens/private households (for investments in energy efficiency and reduction of energy poverty)

The residential sector accounts for more than 36% of total energy demand and, together with the transport sector, is the most energy-intensive sector in the country. The average energy intensity of the residential sector is 169 kWh/m<sup>2</sup> per year. There are three climatic zones and energy intensity varies across them. In order to achieve energy efficiency targets, it is important to direct measures towards the most energy-intensive sectors. Space heating represents the dominant share of energy consumption in the residential sector (60%). Electricity and wood are almost the only fuels used in the sector (99% share). Although the share of wood consumption is higher (55%), it has been gradually declining in recent years. Wood is predominantly used for space heating (77%), while the remainder is used for cooking. The energy efficiency of these

technologies is very low. In addition, almost 70% of residential buildings were constructed before 2000, that is, before the introduction of modern energy efficiency standards.

The objective of this measure is to provide mechanisms of financial support to individuals for investments in energy efficiency and renewable energy sources. This includes the introduction of dedicated national and local subsidy programmes to support energy savings in private households and the use of renewable energy sources.

A household subsidy programme aimed at improving energy efficiency is currently being implemented. The total budget for the programme amounts to €8.8 million, of which €2.8 million has been allocated to the Municipality of Pljevlja, while the remaining €6 million is intended for other municipalities across the country. The maximum amount of non-repayable support per beneficiary is €10,000, while support for individual measures ranges from €2,000 to €6,000. The programme is implemented through cooperation between the Ministry of Energy and Mining and the Eco-Fund, which acts as the implementing body, with technical support provided by the United Nations Development Programme (UNDP). It is important to ensure the continuation of similar support programmes in the forthcoming period in order to further renovate the residential sector.

Entities responsible for implementation: the Ministry of Energy and Mining, the Eco-Fund, locally qualified distributors and installers of energy efficiency equipment, as well as local commercial banks.

Costs: Within the current programme to promote energy efficiency in households, €8.8 million has been allocated to support the household sector. Additional funds need to be secured to ensure continuation of the support programme in the forthcoming period. For the period up to 2027, the indicators defined in the Reform Agenda for the period 2024–2027 should be followed.

#### **7.2.5.4 Development and implementation of the regulatory framework for energy efficiency in buildings**

The National Energy and Climate Plan includes a package of measures relating to energy efficiency in the buildings sector:

- Development and implementation of the regulatory framework for energy efficiency in buildings
- Increased energy efficiency in public buildings
- Implementation of energy efficiency measures in public infrastructure

For the implementation of these measures, a legal framework aligned with the relevant European legislation has been established, and a Study on the Improvement of Energy Efficiency in Buildings in Montenegro has been prepared. A building inventory has been developed, reference buildings by category have been defined, and energy classes have been determined, enabling the finalisation of the national software for calculating the energy performance of buildings and their

certification. Changes have been defined in the obligations of local municipalities and large legal entities (with more than 500 employees), which are required to prepare energy efficiency improvement programmes, report annually on their implementation, and conduct energy audits of their facilities at least once every four years.

Entities responsible for implementation: Public administration (Ministry of Energy and Mining and local self-government units), citizens, private companies/owners of commercial buildings, and investors in residential and commercial buildings.

#### 7.2.5.5 Increased energy efficiency in public buildings

Public buildings account for 9% of the total energy demand in the services sector. Electricity is the dominant energy source used (64%), while extra light fuel oil (15%), coal (15%), wood (6%), and negligible use of LPG are also present. Buildings are characterised by low energy efficiency and, in some cases, very poor comfort conditions. There is a need for significant improvements to building envelopes, heating and cooling systems, domestic hot water preparation, and lighting, as well as the introduction of energy management systems, integration of renewable energy sources, and changes in behaviour and operational practices. Since public buildings are part of the public administration, energy efficiency measures are considerably easier to implement than in the residential sector due to fewer financial and organisational challenges.

The Government has prepared a Plan for the Reconstruction of State Administrative Buildings for the period 2024–2026. Works on educational institutions in Tuzi, Kotor, Nikšić, Cetinje and Bar have been completed. Approximately 40% of the budget has been spent. Projects for public facilities and schools in Podgorica, Plav, Gusinje, Rožaje and Nikšić are in the development and preparation phase.

Entities responsible for implementation: public administration (Ministry of Energy and Mining and bodies responsible for the management of public buildings within local self-government units).

Costs: The total budget amounts to €80 million.

#### 7.2.5.6 Development of decentralised energy generation by producer–consumers (prosumers) and additional development of decentralised energy generation by producer–consumers (prosumers)

The development of decentralised generation has become an indispensable part of the energy transition and has seen wide application in Montenegro. Thanks to the Solari+ project, a large number of households and commercial buildings are opting to install photovoltaic systems on the roofs of their buildings, thereby achieving personal benefits such as reduced electricity bills and energy independence, as well as broader community benefits, including reduced greenhouse gas emissions and environmental protection. EPCG is the main driver of the development of the prosumer concept in Montenegro. The company provides all necessary technical services and financing (in the form of loans repaid through electricity bills, whereby part of the bill represents

the investment repayment). At present, this concept is primarily focused on the residential sector, but it can also be effectively applied to larger consumers. There is strong consumer interest (a potential 26,000 consumers), and in energy terms it is expected that total installed capacity will approach 250 MW by 2030. There are plans for further integration of consumers, as well as the need to develop a methodology for calculating connection capacity and to include battery electricity storage systems as a mandatory part of installations for users.

#### 7.2.5.7 Other measures

##### **1) Promotion of e-mobility**

Although the transport sector makes a significant contribution to greenhouse gas emissions (23%), its contribution to concentrations of suspended particulate matter is limited to a total of 5% and mainly relates to emissions from heavy goods vehicles and buses, which account for 3% of total suspended particulate emissions in Montenegro. The contribution of passenger cars is estimated by the national air pollutant emission inventory at 0.15%. In this context, measures in the transport sector have been considered as an additional set of measures through which air quality may be improved to a limited extent in relation to the identified exceedances and any potential increase in pollution in the future period. Road transport in Montenegro is characterised by a dominant energy share of diesel fuel (80%), followed by petrol (15%), LPG (4%) and a very low consumption of electricity (1%). The transition from diesel to electricity brings improvements in vehicle efficiency, an increased share of renewable energy sources and a significant reduction in greenhouse gas emissions from the transport sector. However, major challenges remain, including the high cost of electric vehicles and limited infrastructure to support e-mobility.

Previous promotion of e-mobility has included subsidies for the purchase of passenger vehicles (M1) and light commercial vehicles (N1).

In the context of reducing air pollution, support for the transformation of the heavy-duty freight and public transport sectors would be particularly significant, as well as increasing the share of rail in freight transport, as presented through the following measure. A modal shift of passenger transport to public bus transport does not have a significant impact if the practice implemented in Podgorica continues — the fleet was renewed with 45 new diesel buses.

Entities responsible for implementation: Ministry of Energy and Mining, Ministry of Transport, Eco Fund, local self-government units.

Costs: The total budget for the project amounts to €353 million, distributed over six years (2025–2030).

##### **2) Modal shift of passenger and freight transport to rail**

The NECP sets a target of a 70% share of rail in total freight transport by 2030.

Entities responsible for implementation: Ministry of Transport.

Costs: The total budget for the project amounts to €112 million, financed through an EU grant.

### **3) Methodology for defining energy-poor groups and measures to reduce energy poverty**

Protection of vulnerable customers and the reduction of energy poverty are obligations undertaken under the Third Energy and Climate Package adopted by the European Parliament, which includes subsidising heating costs for vulnerable customers and improving insulation and energy efficiency of buildings, as well as the use of efficient and health-safe local heating appliances. By adopting the new Energy Law, the European Directive on common rules for the internal market for electricity (No. 2019/944) has been transposed, thereby introducing, for the first time into national legislation, a definition of energy poverty. Energy poverty is a condition in which a household lacks access to essential energy services that ensure decent living and health standards, including adequate heating and cooling, hot water, lighting, and energy to power household appliances. The Energy Community Secretariat has prepared a study on addressing energy poverty in the Contracting Parties of the Energy Community, providing guidance on how to measure the level of energy poverty and design appropriate policies for its reduction. In line with this, it is necessary to undertake activities to collect data relevant for monitoring energy poverty and addressing this phenomenon in Montenegro.

The implementation of policies to address energy poverty would result in multiple benefits, both for affected households and for the community as a whole:

- improvement in quality of life and human health,
- reduced use of individual heating appliances such as solid-fuel stoves and furnaces, thereby directly contributing to the reduction of air pollution both outdoors and indoors,
- reduced use of low-quality and technologically obsolete devices,
- reduced energy expenditure within total household income.

Although some of the proposed measures are aligned with the existing framework and complement the measures proposed in the Fourth Energy Efficiency Action Plan (EEAP), their accessibility to energy-poor households requires consideration of vulnerability criteria and the provision of higher co-financing rates. Furthermore, unlike measures aimed at the general public, the design of schemes intended to reduce energy poverty requires the development, design and establishment of specific support systems. These systems should be elaborated in detail within the Programme for the Mitigation of Energy Poverty. The main objective of such support systems would be to identify individuals in need of assistance, as well as to provide support in the application process and the use of available assistance measures.

Entities responsible for implementation: Ministry of Energy and Mining, Ministry of Social Welfare, Family Care and Demography, Eco Fund, MONSTAT.

### **4) Use of derogation mechanisms and preparation of a roadmap for achieving stricter standards**

Finally, although the objective of this air quality plan is to achieve the currently applicable limit values for the pollutants whose concentrations have been exceeded (PM<sub>10</sub>, PM<sub>2.5</sub> and BaP), it is necessary to act in a timely manner towards reducing air pollution in relation to the new, more stringent standards in accordance with Directive 2024/2881, which has not yet been transposed into Montenegrin legislation. Article 18 of this Directive allows Member States to postpone the deadline for the application of limit values for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), nitrogen dioxide, benzene or benzo(a)pyrene until 1 January 2040 if this is justified by the dispersion characteristics of a specific location, adverse orographic conditions, unfavourable climatic conditions or transboundary pollution transport, or where the required reductions can be achieved only by replacing a significant proportion of existing household heating systems that are the source of pollution or cause exceedances. In this context, Montenegro, in the process of accession, may request the application of this mechanism, with the mandatory preparation of a roadmap for achieving the limit values during the period of deferred application.

Entities responsible for implementation: Ministry of Ecology, Sustainable Development and Northern Development

## **5) Local Environmental Protection Plans**

**The obligation to prepare local environmental protection plans** is established by Article 37 of the Law on Environment, which requires local self-government units to elaborate environmental protection measures within the plan for their respective territories, in accordance with local specificities and the characteristics of the area for which the plan is adopted. The plan establishes objectives and tasks of importance for environmental protection and sustainable development at the local level.

Guidelines for defining air protection measures at the local level can be found in the Manual prepared by the Ministry of Ecology, Sustainable Development and Northern Development in cooperation with the Swedish Environmental Protection Agency, which needs to be translated into Montenegrin.

Entities responsible for implementation: Local self-government units.

## **6) Prevention of forest fires**

Forest fires resulting from the combustion of biomass have a similar effect on air quality as residential heating; however, this source of pollution is sporadic, temporary and unpredictable. Preventing forest fires is particularly important in the Central and Southern regions of Montenegro, where extremely dry and hot summers, as well as inaccessible terrain, favour the occurrence and uncontrolled spread of wildfires.

Podgorica has recorded record high temperatures in recent decades — in August 2007, a maximum of 44.8 °C was measured, the highest value recorded at the national level. The city has also been affected by numerous droughts (2003, 2007, 2012, 2017, 2018, 2020), which were

often accompanied by heatwaves, fires and significant agricultural losses. According to the 2022 report of the Capital City's Protection and Rescue Service, 1,633 fire-related interventions were recorded, while in the period 1 June–25 July 2025 as many as 675 fires were registered within the territory of the Capital City.

The prevention of forest fires is proposed through:

- Implementation of the Disaster Risk Reduction Strategy for the period 2025–2030, which envisages the preparation of an Operational Fire Protection and Rescue Plan for the state forestry management company, as well as the preparation and revision/update of protection and rescue plans for Montenegro's national parks.

Entities responsible for implementation: Public Enterprise National Parks of Montenegro, the state forestry management company.

- Implementation of a campaign on the harmful effects of burning agricultural waste.
- Introduction of stricter penalties for open burning of waste.

Entities responsible for implementation: Ministry of Ecology, Sustainable Development and Northern Development, with the support of an IPA project.

- At the local level, consideration should be given to establishing voluntary fire brigades and training volunteers to assist professional services when necessary.

### **7.3 AIR QUALITY MAINTENANCE PLAN FOR THE SOUTHERN ZONE**

Relevant national and European legislation does not require the preparation of an air quality plan for zones in which exceedances have not been recorded. Article 27 of the Law on Air Protection stipulates the following:

*“In zones where concentrations of pollutants do not exceed the prescribed limit values or long-term objectives for ozone, the Agency and the local self-government units within whose territory the zone is located shall plan, approve and implement all activities in accordance with the precautionary principle, in such a way as to cause the least possible change in air quality, that is, to present the lowest possible risk to the environment and human health, and to prevent or limit impacts on air quality at the source of pollution so that these values are not exceeded and to endeavour to preserve the best air quality in accordance with sustainable development.”*

In accordance with the above, this plan has a significantly different structure and purpose compared with air quality plans for zones in which air quality needs to be improved and pollution reduced.

The Southern air quality zone covers the coastal region of Montenegro and includes the following municipalities: Bar, Budva, Kotor, Tivat, Ulcinj and Herceg Novi, in accordance with the Regulation establishing the network of monitoring sites for air quality monitoring which defines the air quality zones in Montenegro.

Within the Southern air quality zone, air quality is continuously monitored at two monitoring sites:

***Table 15: Monitoring sites in the Southern air quality zone***

| No. | Monitoring station | Zone     | Type of station | Pollutants measured                                                                                                                                           |
|-----|--------------------|----------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Bar                | Southern | UB              | NO, NO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , PM <sub>2.5</sub> , PM <sub>10</sub> (Pb, As, Cd, Ni and BaP in PM <sub>10</sub> )                   |
| 2.  | Kotor              | Southern | UT              | NO, NO <sub>2</sub> , NO <sub>x</sub> , CO, SO <sub>2</sub> , C <sub>6</sub> H <sub>6</sub> , PM <sub>10</sub> , (Pb, As, Cd, Ni and BaP u PM <sub>10</sub> ) |

The monitoring site in Bar (SC Topolica) is an urban background monitoring site, while the monitoring site in Kotor (Sv. Stasije) is intended to monitor the impact of road and maritime transport.

### **7.3.1 General information**

In accordance with the Regional Development Strategy of Montenegro, the Coastal region represents the most densely populated region in Montenegro. Although it covers only 12% of the country's total territory, it is home to one quarter of the total population. The drivers of further development in this region are reflected precisely in positive demographic trends, as well as a significant inflow of foreign direct investment. The region has considerable potential for the development of tourism, the maritime economy and agriculture, and it hosts important educational capacities and significant potential for the development of entrepreneurship. To date, development has been based on tourism, hospitality, entrepreneurship and, to a certain extent, agriculture. The region is characterised by migration from other regions, as well as an inflow of workers from other countries, particularly during the tourist and construction seasons.

With regard to climatic characteristics, the Montenegrin coast has all the features of an Adriatic–Mediterranean climate, meaning that the area is characterised by long, hot and dry summers and relatively mild and rainy winters. The average air temperature in all coastal locations exceeds 18°C for six months of the year, accompanied by corresponding sea temperatures and high levels of insolation. According to these indicators, the Montenegrin coast belongs to the group of the warmest and sunniest regions in Europe. Precipitation is most abundant in the Bay of Kotor area, and the Mediterranean pluviometric regime is characterised by maximum precipitation in late autumn and early winter, while a pronounced minimum occurs during the summer period, when prolonged dry spells are very frequent.

### **Territory**

The total area of municipalities belonging to the Southern air quality zone amounts to 1,504 km<sup>2</sup>. This territory includes six municipalities (Bar, Budva, Kotor, Tivat, Ulcinj and Herceg Novi). The largest territory is occupied by the Municipality of Bar (504 km<sup>2</sup>), while the Municipality of Tivat is the smallest municipality in Montenegro (47 km<sup>2</sup>).

### **Population**

According to the latest population census (2023), a total of 163,672 inhabitants live within the territory of the zone. The most populated municipality in the coastal region of Montenegro is Bar, with 45,812 inhabitants.

### **Concentrations of pollutants and population exposure**

Pollutant concentrations recorded during 2024 are in line with the stricter standards that will be applied in the EU from 2030, although for some pollutants they are very close to the prescribed limit values. For example, the average concentration of suspended particles PM<sub>10</sub> was 18.97 µg/m<sup>3</sup> compared with the limit value of 20 µg/m<sup>3</sup>, while the concentration of suspended particles PM<sub>2.5</sub> was 9.46 µg/m<sup>3</sup> compared with the new limit value (not yet in force) of 10 µg/m<sup>3</sup>. This indicates the need for careful planning of activities in this region and an active approach to preserving air quality.

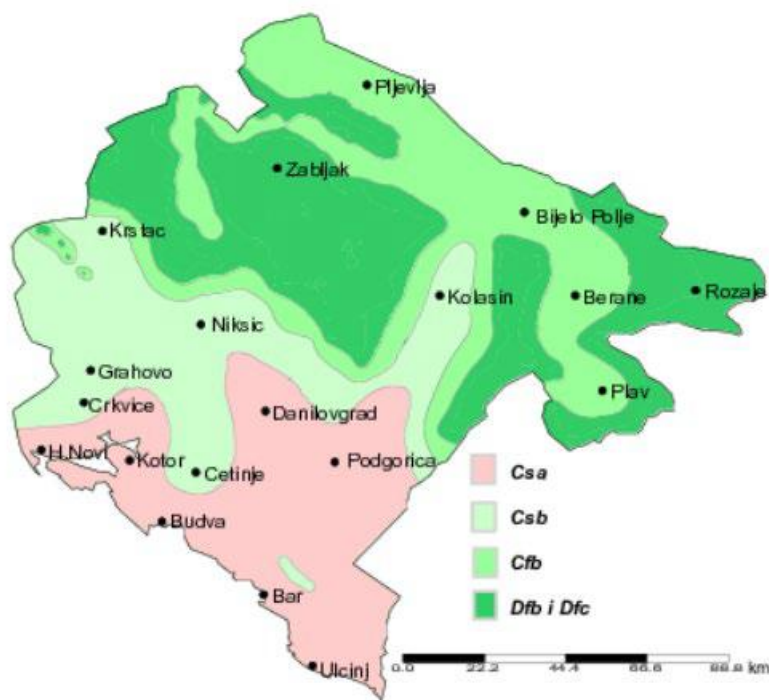
Unlike the other two zones, due to the mild climate and the infrequent use of solid fuels for household heating, the average content of benzo(a)pyrene in suspended particles in this zone is 0.29 ng/m<sup>3</sup>, below the target value of 1 ng/m<sup>3</sup>.

Climatic zones in Montenegro in accordance with the Köppen system are presented in Illustration 9.

### ***Illustration 9: Köppen system in Montenegro – climate regionalisation***

Tabela 1. Keppenov sistem u Crnoj Gori

| Klimatski razred (klimat) | Klimatski tip | Klimatski podtip | Naziv                                              |
|---------------------------|---------------|------------------|----------------------------------------------------|
| C                         | Cs            | Csa              | sredozemna klima s vrućim ljetom                   |
|                           |               | Cs/ s''/b        | prelazna varijanta etezijske klime s toplim ljetom |
|                           | Cf            | Cfb              | umjereno topla i vlažna klima s toplim ljetom      |
| D                         | Df            | Dfb              | umjereno hladna i vlažna klima s toplim ljetom     |
|                           |               | Dfc              | vlažna borealna klima sa svježim ljetom            |



Slika 1. Klimatska rejonizacija Crne Gore po W.Koppenu na osnovu standardnog klimatskog perioda 1961-1990. godine: Cs/s''/ - sredozemna klima /prelazna varijanta etezijske klime/, Cf - umjereno topla i vlažna klima, Df - umjereno hladna (borealna) i vlažna klima, ----- granica do koje preovladava uticaj Mediterana na rezim padavina

| Climate class (climate) | Climate type | Climate subtype | Name                                                      |
|-------------------------|--------------|-----------------|-----------------------------------------------------------|
| C                       | Cs           | Csa             | Mediterranean climate with hot summers                    |
|                         |              | Cs/ s'' / b     | transitional variant of Etesian climate with warm summers |
|                         | Cf           | Cfb             | moderately warm and humid climate with warm summers       |
| D                       | Df           | Dfb             | moderately cold and humid climate with warm summers       |
|                         |              | Dfc             | humid boreal climate with cool summers                    |

***Figure 1. Climatic regionalisation of Montenegro according to W. Köppen based on the standard climatic period 1961–1990: Cs/s" – Mediterranean climate / transitional variant of Etesian climate /, Cf – moderately warm and humid climate, Df – moderately cold (boreal) and humid climate, \_ \_ \_ boundary up to which the Mediterranean influence on the precipitation regime prevails***

Source of data: Botanical Lexicon of Montenegro, Montenegrin Academy of Sciences and Arts,  
<https://leks.canu.ac.me/web/blcq.php?OID=1678>

### **7.3.2 Competent authorities**

The authority responsible for coordination and oversight of the implementation of this Strategy, including air quality plans at the zone level, is the Ministry of Ecology, Sustainable Development and Development of the North.

Local self-government units within this zone are obliged to elaborate and plan the implementation of pollution reduction measures within their Local Environmental Action Plans, in accordance with the specific characteristics of their territories.

The Ministry of Energy and Mining is responsible for the implementation of the National Energy and Climate Plan, the implementation of which will contribute to pollution reduction.

The Environmental Protection Fund (Eco Fund) plays an important role in the implementation of certain measures through the co-financing of projects, programmes and other activities within its scope of work.

The Ministry of Transport, the Ministry of Interior, and other institutions also have a role in implementing measures within their respective competences.

### **7.3.3 Description of the baseline scenario on which the air quality plan is based in order to illustrate the consequences of inaction, including the projected emission and concentration trends**

#### **7.3.3.1 Identification of air pollution reduction measures that may be considered, and detailed information on those measures**

In accordance with the obligation to align the Air Pollution Reduction Programme with the National Energy and Climate Plan, as well as the obligation to align air quality plans with the Air Pollution Reduction Programme, numerous measures (out of a total of 56 measures) from the NECP were considered as potential synergies within this segment of air protection policy. These measures could contribute to rapid improvements in air quality, the enhancement of public health in line with the European Green Deal, and the achievement of stricter standards expected of Montenegro as a future EU Member State.

The measures considered are presented in the table below:

**Table 16: Measures considered from the NECP**

| <b>No.</b> | <b>Policies and measures</b>                                                                       | <b>Target sector</b>                     |
|------------|----------------------------------------------------------------------------------------------------|------------------------------------------|
| <b>1</b>   | Reconstruction of the Pljevlja Thermal Power Plant (TPP) and future operational plan               | Energy industry / electricity generation |
| <b>2</b>   | New renewable energy power plants                                                                  | Energy industry / electricity generation |
| <b>3</b>   | Additional renewable energy power plants                                                           | Energy industry / electricity generation |
| <b>4</b>   | Renewable energy auctions                                                                          | Energy industry / electricity generation |
| <b>5</b>   | Development of CP mechanisms (EU ETS)                                                              | Energy industry / electricity generation |
| <b>6</b>   | Rehabilitation of small hydropower plants (increased efficiency)                                   | Energy industry / electricity generation |
| <b>7</b>   | Development of decentralised energy generation (medium-voltage distribution connection)            | Energy industry / electricity generation |
| <b>8</b>   | Additional development of decentralised energy generation (medium-voltage distribution connection) | Energy industry / electricity generation |
| <b>9</b>   | Promotion of e-mobility                                                                            | Transport                                |
| <b>10</b>  | Introduction of a mandatory share of biofuels in fuel supply                                       | Transport                                |
| <b>11</b>  | Prosumers in industry                                                                              | Industry                                 |
| <b>12</b>  | Biofuels in industry                                                                               | Industry                                 |
| <b>13</b>  | Financial incentives for the introduction of hybrid specialised machinery in the industrial sector | Industry                                 |
| <b>14</b>  | Development of decentralised energy generation by prosumers                                        | Residential/commercial sector            |
| <b>15</b>  | Additional development of decentralised energy generation by prosumers                             | Residential/commercial sector            |
| <b>16</b>  | Support for organic agricultural production                                                        | Agriculture                              |
| <b>17</b>  | Support for manure management                                                                      | Agriculture                              |
| <b>18</b>  | Reduction of bio-waste in municipal waste                                                          | Waste                                    |

### ***Air Quality Management Strategy for the period 2026–2029***

|           |                                                                                                                             |                                   |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| <b>19</b> | Increase in connection rate to the sewerage system (target 93% by 2035)                                                     | Waste                             |
| <b>20</b> | District heating in Pljevlja                                                                                                | Energy industry / heat production |
| <b>21</b> | Ban on the import of old vehicles (Euro 4 or lower standard)                                                                | Transport                         |
| <b>22</b> | Modal shift of passenger transport to public bus transport                                                                  | Transport                         |
| <b>23</b> | Modal shift of passenger and freight transport to rail                                                                      | Transport                         |
| <b>24</b> | Development and implementation of the regulatory framework for energy efficiency in buildings                               | Residential / public / commercial |
| <b>25</b> | Increased energy efficiency in public buildings                                                                             | Public sector                     |
| <b>26</b> | Implementation of energy efficiency measures in public infrastructure                                                       | Public sector                     |
| <b>27</b> | Financial incentives for citizens/private households (for investments in energy efficiency and reduction of energy poverty) | Residential                       |

#### **7.3.3.2 Selected measures and their expected effect**

(a) a list of the selected measures, including information (such as modelling results and measure assessments) for achieving the required air quality standard in accordance with Annex I; where appropriate, if the list of measures under point 6(a) includes measures with a high potential to improve air quality that were not selected, an explanation of the reasons for their non-selection;

Taking into account the good air quality in the Southern Zone, as well as the purpose and structure of this plan, the proposed measures will be applied as preventive measures:

**Table 17: Measures to be implemented under the NECP**

| No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Measures to be implemented under the NECP                                                                                   | Sector                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Link between the measures in this table and the objectives of the Strategy: these measures are implemented preventively in order to preserve air quality in the Southern Zone and are linked to Strategic Objective 1 and operational objectives 1.A, 1.B and 1.C (reduction of concentrations and emissions), as well as to operational objective 2.C (further alignment with stricter air quality standards). In reporting on implementation, the operational objective indicator to which the measure contributes should also be stated. |                                                                                                                             |                                   |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Financial incentives for citizens/private households (for investments in energy efficiency and reduction of energy poverty) | Residential                       |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Development and implementation of the regulatory framework for energy efficiency in buildings                               | Residential / public / commercial |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Increased energy efficiency in public buildings                                                                             | Public                            |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Development of decentralised energy production by prosumers                                                                 | Residential/commercial            |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Additional development of decentralised energy production by prosumers                                                      | Residential/commercial            |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Promotion of e-mobility                                                                                                     | Transport                         |

In addition to these measures, further actions need to be implemented in the Southern Air Quality Zone in order to maintain air quality:

✓ **Local environmental protection plans**

The obligation to prepare local environmental protection plans is prescribed by Article 37 of the Law on the Environment, which requires local self-government units to elaborate environmental protection measures for their territory within the plan, in accordance with local specificities and the characteristics of the area for which the plan is adopted. The plan establishes objectives and tasks of importance for environmental protection and sustainable development at the local level. Guidelines for defining air protection measures at the local level can be found in the Manual prepared by the Ministry of Ecology, Sustainable Development and Development of the North in cooperation with the Swedish Environmental Protection Agency, which needs to be translated into Montenegrin.

Entities responsible for implementation: Local self-government units.

✓ **Prevention of forest fires**

Forest fires resulting from the combustion of biomass have a similar effect on air quality as household heating; however, this source of pollution is sporadic, temporary and unpredictable. Preventing forest fires is particularly important in the Central and Southern regions of Montenegro, where extremely dry and hot summers, as well as inaccessible terrain, favour the occurrence and uncontrolled spread of forest fires.

Due to their geographical position and the increasingly pronounced negative impacts of climate change, Montenegro's forests are particularly vulnerable. During July and August 2017 alone, 115 forest fires were recorded in state forests, while 39 fires were recorded in private forests. The estimated volume of burned timber amounted to 96,309.13 m<sup>3</sup>, and it was recorded that 267,500 seedlings planted during 2015 and 2016 (young forest plantations) were destroyed. At present, the most significant threats to forests are climate change, with increased risks of drought, fires and biotic pests, and these threats are expected to intensify in the future. Forest fires have increased significantly since 1990. In the 1990s, the average annual forest area affected by fires was 888 ha; in the 2000s it increased to 3,609 ha; and in the period 2010–2018 the average annual area rose to 9,370 ha.

Prevention of forest fires is proposed through:

- Implementation of the Disaster Risk Reduction Strategy for the period 2025–2030, which envisages the preparation of a Corporate Fire Protection and Rescue Plan for the Forest Management Company, as well as the preparation and revision/update of protection and rescue plans for the national parks of Montenegro.  
Entities responsible for implementation: National Parks of Montenegro Public Enterprise; Forest Management Company
- Conducting a campaign on the harmful effects of burning agricultural waste
- Introduction of a stricter penalty policy for open burning of waste  
Entities responsible for implementation: Ministry of Ecology, Sustainable Development and Development of the North, with the support of an IPA project
- At the local level, the establishment of voluntary fire brigades should be considered and volunteers trained so that, when necessary, they can assist professional services.
- Monitoring transboundary pollution transport and the contribution of pollution from natural sources
- Institute of Hydrometeorology and Seismology
- Saharan dust, fires, etc.

## 8. PROGRAMME OF MEASURES FOR AIR POLLUTION CONTROL

**Common format of the national air pollution control programme in accordance with Article 6 of Directive (EU) 2016/2284**

### **Note on the link between the Programme of Measures and the Strategy objectives**

The Air Pollution Control Measures Programme is an instrument for implementing the Strategy. Measures marked M1-M12 are not operational objectives, but activities/packages of measures that contribute to the achievement of strategic and operational objectives. The operational objectives of the Strategy are marked as 1.A, 1.B, 1.C, 2.A, 2.B and 2.C, and are listed in the tables of the Programme of Measures in order to clearly monitor the link between objectives, measures, competent authorities, deadlines, sources of financing and performance indicators.

### **1. DESCRIPTION OF FIELDS**

All fields in this common format marked with the letter (M) are mandatory, while fields marked with the letter (O) are optional.

### **2. COMMON FORMAT**

#### **2.1 Programme title, contact details and websites**

##### **2.1.1 Programme title, contact details and websites (M)**

| <b>Programme title</b>                                   | <b>National Air Pollution Control Programme of Montenegro for the period 2026–2029</b> |
|----------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>Date</b>                                              | January 2026                                                                           |
| <b>Country</b>                                           | Montenegro                                                                             |
| <b>Responsible body for preparation of the programme</b> | MERS - Ministry of Ecology, Sustainable Development and Northern Development           |
| <b>Contact telephone</b>                                 | +382 020 418 138 (Directorate for Environmental Improvement)                           |
| <b>E-mail</b>                                            | XX (official address of the competent organisational unit for air quality)             |

## Air Quality Management Strategy for the period 2026–2029

|                                                 |                                                                                                                                                                                                                          |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Website where the programme is published</b> | <a href="https://www.gov.me">https://www.gov.me</a> (section Documents – Strategies, plans and programmes)                                                                                                               |
| <b>Public consultation websites</b>             | Government of Montenegro Public Consultation Portal: <a href="https://www.gov.me/javne-rasprave">https://www.gov.me/javne-rasprave</a> ; Ministry website: <a href="https://www.gov.me/mers">https://www.gov.me/mers</a> |

## 2.2 Summary (O)

*The summary may also be presented as a separate document (preferably not exceeding 10 pages). It should briefly describe sections 2.3 to 2.8. Where possible, graphical representations should be used to illustrate the summary.*

### 2.2.1 National policy framework for air quality and air pollution

|                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Policy priorities and their linkages with priorities established in other relevant policies</b></p>          | <p>Montenegro has established a national policy and legislative framework in the field of air quality that is largely aligned with European Union requirements, primarily with Directive 2008/50/EC on ambient air quality and cleaner air for Europe and Directive (EU) 2016/2284 on the reduction of national emissions of certain atmospheric pollutants.</p> <p>The key regulations and strategic documents in the field of air quality include:</p> <ul style="list-style-type: none"> <li>• Law on Climate Change</li> <li>• Law on Environmental Protection</li> <li>• Law on Air Protection and related by-laws on air quality</li> <li>• National Energy and Climate Plan of Montenegro</li> <li>• Air Quality Plans for zones and agglomerations (particularly Pljevlja and Bijelo Polje)</li> </ul> |
| <p><b>The base year for monitoring and controlling compliance with emission reduction obligations is 2005.</b></p> | <p>Main national priorities are:</p> <ul style="list-style-type: none"> <li>• achieving full compliance with EU limit and target values for PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>2</sub>, SO<sub>2</sub> and BaP</li> <li>• reducing emissions of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, NMVOC and NH<sub>3</sub> in accordance with emission reduction commitments relative to 2005</li> <li>• strengthening institutional and technical capacity for monitoring, emission inventories and air quality modelling</li> <li>• integrating air protection measures with decarbonisation and energy transition measures defined in the NECP</li> <li>• strengthening the role of local self-government units through the preparation and implementation of local air quality plans</li> </ul>     |

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|                                                                                                    | <p>Link with the strategic and operational objectives of the Strategy: The Programme of Measures directly contributes to achieving Strategic Objective 1 – Improvement of air quality and Strategic Objective 2 – Further improvement of air quality monitoring and management.</p> <p>The Programme measures are grouped and monitored in relation to the operational objectives of the Strategy, namely:</p> <ul style="list-style-type: none"><li>• Operational objective 1.A – Reduction of concentrations of suspended particles and benzo(a)pyrene content in the Northern Air Quality Zone;</li><li>• Operational objective 1.B – Reduction of benzo(a)pyrene content in suspended particles in the Central Air Quality Zone;</li><li>• Operational objective 1.C – Reduction of emissions of pollutants (NO<sub>x</sub>, SO<sub>2</sub>, VOC, NH<sub>3</sub> and PM<sub>2.5</sub>);</li><li>• Operational objective 2.A – Improvement of the quality of data on air quality and emissions of pollutants into the air;</li><li>• Operational objective 2.B – Improvement of cooperation among relevant institutions, local self-government units, civil society and the professional public;</li><li>• Operational objective 2.C – Further alignment with stricter air quality standards.</li></ul> <p>This linkage makes it possible for annual and final reporting to monitor not only the implementation of individual measures, but also the contribution of each measure to the achievement of operational objectives, in a manner comparable to the methodological presentation of objectives, indicators and activities in reports on the implementation of other strategic documents.</p> |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
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| <b>Competences assigned to national, regional and local authorities</b>                            | <table><tr><th>Level</th><th>Institutions / Bodies</th></tr><tr><td>National level</td><td>MERS</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Level | Institutions / Bodies | National level | MERS | <table><tr><th>Key competencies</th></tr><tr><td>- Adopts strategies, programmes and regulations on air protection.</td></tr><tr><td>- Coordinates preparation and implementation of national plans (e.g. NERP, Programme of Measures).</td></tr><tr><td>- Establishes emission and air quality standards.</td></tr><tr><td>- Reports to the Government and international institutions (EU, EEA, UNECE).</td></tr></table> |  | Key competencies | - Adopts strategies, programmes and regulations on air protection. | - Coordinates preparation and implementation of national plans (e.g. NERP, Programme of Measures). | - Establishes emission and air quality standards. | - Reports to the Government and international institutions (EU, EEA, UNECE). |
| Level                                                                                              | Institutions / Bodies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
| National level                                                                                     | MERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
| Key competencies                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
| - Adopts strategies, programmes and regulations on air protection.                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
| - Coordinates preparation and implementation of national plans (e.g. NERP, Programme of Measures). |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
| - Establishes emission and air quality standards.                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |
| - Reports to the Government and international institutions (EU, EEA, UNECE).                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |                       |                |      |                                                                                                                                                                                                                                                                                                                                                                                                                            |  |                  |                                                                    |                                                                                                    |                                                   |                                                                              |

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|  |                | <ul style="list-style-type: none"> <li>- Conducts air quality monitoring and monitoring of emissions from installations.</li> <li>- Maintains the national Pollutant Release and Transfer Register (PRTR).</li> <li>- Processes and publishes air quality data.</li> <li>- Prepares annual reports and assessments of compliance with obligations.</li> </ul>        |
|  | EPA            |                                                                                                                                                                                                                                                                                                                                                                      |
|  | MEIR / MS      | <ul style="list-style-type: none"> <li>- Develop and implement policies affecting emissions from energy, transport and industry sectors.</li> <li>- Integrate energy efficiency and sustainable mobility measures.</li> <li>- Monitor implementation of regulations on emissions and air quality.</li> </ul>                                                         |
|  | Regional level | <p>Administrations and inspection centres</p> <ul style="list-style-type: none"> <li>- Conduct inspections of industrial and energy installations.</li> <li>- Suspend or restrict operations in case of exceedance of limit values.</li> <li>- Adopt local air protection programmes and plans.</li> </ul>                                                           |
|  | Local level    | <p>Municipalities and city administrations</p> <ul style="list-style-type: none"> <li>- Implement measures from the Programme (energy renovation of buildings, public transport improvements, green zones).</li> <li>- Organise local monitoring and data collection.</li> <li>- Report to the Ministry and the Agency on the implementation of measures.</li> </ul> |

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|  | Public utility services and public enterprises | <ul style="list-style-type: none"> <li>- Conduct public awareness campaigns and citizen information measures.</li> <li>- Implement operational measures: street maintenance, dust reduction, traffic regulation, and waste management.</li> <li>- Participate in the implementation of energy efficiency and renewable energy measures.</li> </ul> |
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### **2.2.2. Progress in reducing emissions and improving air quality achieved since 2005 through implemented policies and measures**

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |             |             |             |             |                                         |
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| <b>Achieved emission reductions</b>                      | In the period 2005–2023, Montenegro did not achieve a reduction in total emissions of SO <sub>2</sub> and NO <sub>x</sub> , although the energy and industrial sectors have been partially modernised, fuel quality has improved, and gradual alignment with IPPC and IED requirements has been implemented. PM <sub>2.5</sub> emissions remain relatively high due to the use of solid fuels in households, while NMVOC emissions have not decreased sufficiently, as measures in agriculture and waste management have not yet been fully developed. In contrast, a decline in NH <sub>3</sub> emissions has been recorded.             |             |             |             |             |             |                                         |
| <b>Progress in relation to air quality objectives</b>    | According to the national emissions inventory, the situation is as follows:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |             |             |             |             |             |                                         |
|                                                          | <b>Pollutant</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>2005</b> | <b>2010</b> | <b>2015</b> | <b>2020</b> | <b>2023</b> | <b>Change 2023 compared to 2005 (%)</b> |
|                                                          | SO <sub>2</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 45.19       | 49.71       | 61.82       | 66.16       | 68.80       | +52.2 %                                 |
|                                                          | NO <sub>x</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 11.36       | 13.20       | 14.96       | 15.52       | 17.69       | +55.7 %                                 |
|                                                          | NMVOC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.59        | 9.85        | 9.94        | 10.01       | 10.45       | +8.9 %                                  |
|                                                          | NH <sub>3</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 4.22        | 3.95        | 3.62        | 3.15        | 2.91        | –31.0 %                                 |
|                                                          | PM <sub>2.5</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.97        | 5.28        | 5.65        | 6.06        | 6.08        | +22.5 %                                 |
| <b>Transboundary impact of domestic emission sources</b> | <p>Due to Montenegro's geographical position in relation to neighbouring countries, certain domestic emission sources may have transboundary impacts. The most significant contributions originate from energy facilities, transport, industry, and solid-fuel combustion in household heating, particularly during periods of unfavourable meteorological conditions.</p> <p>Pollutants — especially SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub> and NMVOC — may contribute to increased concentrations of secondary particulate matter and ozone in regions of western Serbia, Albania, and Bosnia and Herzegovina, as well as</p> |             |             |             |             |             |                                         |

## ***Air Quality Management Strategy for the period 2026–2029***

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|  | <p>to reciprocal impacts from emissions originating in these countries on the territory of Montenegro.</p> <p>Montenegro participates in regional data-exchange mechanisms under the Convention on Long-Range Transboundary Air Pollution (CLRTAP – EMEP network) and regularly reports emissions and concentration data. Based on analyses conducted to date, the contribution of Montenegro's emissions to overall transboundary pollution is small; however, the importance of cooperation in controlling the transboundary transport of ozone and particulate matter is recognised.</p> <p>Within the implementation of the Programme of Measures 2026–2029, strengthening regional cooperation, data exchange, and the harmonisation of monitoring and atmospheric modelling methodologies is planned in order to ensure impact assessment and timely public information.</p> |
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### ***2.2.3. Projected future development up to 2030 assuming no changes to already adopted policies and measures***

|                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <b>Projected emissions and emission reductions (projections with measures)</b> | <p>Emission projections under the WEM scenario are based on the implementation of existing laws and by-laws, applicable technical standards, and current sectoral policies in the fields of energy, transport, industry, and environmental protection. The scenario does not include additional measures planned under the Programme for the period 2026–2029.</p> <p>Compared with the base year 2005, a partial reduction in emissions is expected by 2029, primarily due to technological improvements in industry and vehicle modernisation, while progress in the residential heating and agriculture sectors is expected to remain limited. The estimated overall emission reduction effects are as follows:</p> <ul style="list-style-type: none"> <li>• SO<sub>2</sub> – reduction of approximately 80–85%,</li> <li>• NO<sub>x</sub> – reduction of 5–10%,</li> <li>• NMVOC – reduction of 5–10%,</li> <li>• NH<sub>3</sub> – reduction of 25–30%,</li> <li>• PM<sub>2.5</sub> – reduction of 0–5%.</li> </ul> <p>Although these results represent progress compared with the baseline situation, the WEM scenario does not enable full compliance with emission reduction commitments under international agreements and the EU NEC Directive, particularly beyond 2030.</p> |
| <b>Projected impact on air quality improvement</b>                             | <p>The implementation of existing measures is expected to result in moderate improvements in air quality, but not sufficient to fully achieve limit values in all urban areas. Analyses indicate that by 2029:</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

## ***Air Quality Management Strategy for the period 2026–2029***

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
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| <b>(projections with measures)</b> | <ul style="list-style-type: none"> <li>• average annual PM<sub>2.5</sub> concentrations will decrease by 0–5% compared with 2005,</li> <li>• NO<sub>x</sub> concentrations will decrease by approximately 5–10%,</li> <li>• SO<sub>2</sub> will be reduced by 90% compared with the base year, largely due to the environmental reconstruction of TPP Pljevlja.</li> </ul> <p>Although the number of days exceeding PM<sub>2.5</sub> limit values will decrease in certain areas (e.g. Podgorica, Nikšić, and the southern region), exceedances will continue to occur frequently in Pljevlja, Bijelo Polje, and northern municipalities due to local emissions from household heating and transport. Overall progress in air quality under the WEM scenario is limited and insufficient to ensure permanently clean air in urban centres.</p>                                                                                                                 |
| <b>Uncertainties</b>               | <p>Emission and air quality projections under the WEM scenario, relative to 2005, carry a significant level of uncertainty due to:</p> <ul style="list-style-type: none"> <li>• assumptions regarding economic growth, fuel consumption and the structure of the energy mix,</li> <li>• variations in meteorological conditions affecting pollutant dispersion (temperature inversions, wind, precipitation),</li> <li>• the degree of implementation and enforcement of existing regulations in practice,</li> <li>• technical and statistical differences in emission estimation between sectors and reporting years.</li> </ul> <p>For these reasons, data will be regularly updated and verified through the national emissions monitoring system (PRTR, CLRTAP) and reporting by the Environmental Protection Agency, ensuring a more realistic basis for assessing the effects of measures (WEM scenario) and for planning new policies beyond 2030.</p> |

### ***2.2.4 Policy options considered to meet the 2030 emission reduction commitments*** ***Main groups of policy options considered***

For the purpose of providing a clearer overview of what is targeted by the selected measures, the main emission sources by pollutant (in the base year) are listed below:

- NO<sub>x</sub>
  - Electricity generation – 8.24 kt (47%)
  - Transport sector – 7.89 kt (45%)
- NMVOC
  - Residential sector (space heating) – 4.12 kt (39%)
  - Coal exploitation – 1.4 kt (13%)
  - Waste management – 1.23 kt (12%)
  - Transport sector – 1.21 kt (12%)
- SO<sub>x</sub>
  - Electricity generation – 68.29 kt (99%)

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- NH<sub>3</sub>
  - Manure management – 1.47 kt (50%)
  - Animal manure applied to soils – 0.80 kt (27%)
  - Urine and dung deposited by grazing animals – 0.42 kt (14%)
- PM2.5
  - Residential sector (space heating) – 5.08 kt (84%).

In Chapter 7.1.6, a brief description of the specific measures adopted from the NECP is provided.

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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| <b>Main groups of policy options considered</b> | <p>The following groups of policies and measures were analysed:</p> <ul style="list-style-type: none"> <li>• Energy sector: reconstruction of TPP Pljevlja and its future operational role (reconstruction was completed in 2025; trial operation is underway during the period 2026–2027.); new and additional renewable energy plants; renewable energy auctions; development of CP/ETS mechanisms; rehabilitation of small hydropower plants.</li> <li>• Buildings and households: district heating in Pljevlja; energy efficiency improvements in buildings; prosumers (consumer-producers – approximately 35,000 equivalent prosumers is expected in 2030).</li> <li>• Transport: promotion of e-mobility; mandatory biofuel blending; ban on the import of Euro 4 and lower-standard vehicles; modal shift to public transport and rail.</li> <li>• Industry: prosumers and biofuels in industry; hybrid specialised machinery.</li> <li>• Agriculture and waste: support for organic agriculture; manure management; reduction of biowaste; increased connection to sewerage systems.</li> </ul> |
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### ***2.2.5 Summary of policies and measures selected for adoption by sector, including the timetable for their adoption, implementation and review, and the competent authorities responsible***

| Sector Covered       | Policies and measures                     |                                |                                                         |                                                           |
|----------------------|-------------------------------------------|--------------------------------|---------------------------------------------------------|-----------------------------------------------------------|
|                      | Selected Policies and Measures            | Timetable for Implementation   | Entities Responsible for Implementation and Enforcement | Schedule for the review of selected policies and measures |
| <b>Energy supply</b> | Existing IED permits and NERP obligations | Continuous, in accordance with | MEIR; MERS; EPA; operators of energy                    | Periodically, through IED                                 |

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|                             | for large combustion plants; application of fuel sulphur content requirements; existing plans for modernisation of thermal power plants.                                                               | valid permits and operators' plans, broadly until 2030.                                  | installations (EPCG and others).                                                                                                                     | permit revisions and annual emissions reporting.                                               |
| <b>Energy consumption</b>   | Implementation of the current Energy Efficiency Law; existing subsidy programmes for energy efficiency in public buildings; application of minimum requirements for new buildings.                     | Continuous, through implementation of existing programmes and projects during 2020–2030. | MEIR; Eco Fund; local self-government units; public institutions – building owners.                                                                  | At the end of programme cycles (every 3–5 years) and through annual EE reports.                |
| <b>Transport</b>            | Application of Euro standards for vehicle imports; existing vehicle inspection measures; development of basic infrastructure for public transport and pedestrian–cycling routes where already planned. | Continuous, in accordance with applicable legislation and adopted local transport plans. | Ministry of Transport; Transport Administration; Ministry of Interior (vehicle registration); local self-governments and public transport companies. | Periodically, through transport plan revisions (every 5 years) and annual statistical reports. |
| <b>Industrial processes</b> | Application of existing IPPC permits and emission limit values; application of BAT requirements where already prescribed; existing filtration and desulphurisation systems in industry.                | Continuous, in accordance with permit deadlines and plant modernisation plans.           | MERS; EPA; environmental inspection; industrial operators.                                                                                           | Regular permit reviews (every 5–10 years) and annual reporting on emissions by the operators.  |
| <b>Agriculture</b>          | Application of existing regulations on manure and fertiliser management; restrictions on burning crop residues; existing                                                                               | Continuous, within regular agricultural practice and implementation of the               | Ministry of Agriculture, Forestry and Water Management; agricultural inspection;                                                                     | Periodically, during revision of the Agriculture and Rural                                     |

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|                                   | rural development programmes that indirectly affect emissions.                                                                                                                                                      | Agriculture and Rural Development Programme.                                       | municipalities (municipal services regarding burning of plant waste). | Development Programme.                                                                                                           |
| <b>Waste and waste management</b> | Implementation of the Waste Management Law; existing sanitary landfilling systems; restriction and control of uncontrolled waste burning; existing landfill remediation plans.                                      | Continuous, in accordance with existing local and national waste management plans. | MERS; EPA; municipal utility companies; local self-governments.       | Revision of national and local waste management plans (every 5 years) and annual reports of municipal utility companies.         |
| <b>Cross-sectoral issues</b>      | Implementation of existing strategic documents (e.g. NECP, national environmental protection strategies); existing air quality monitoring system; regular reporting under international obligations (CLRTAP, EMEP). | Continuous, in line with existing strategies and plans, until 2030.                | MERS; EPA; other competent ministries; local self-governments.        | Regular preparation and revision of strategic documents (every 5–10 years) and annual reporting under international conventions. |
| <b>Other (to be specified)</b>    | Existing public information activities on air quality (web portals, press releases, campaigns under existing projects); participation in regional projects and initiatives.                                         | Periodic, depending on available projects and funding.                             | MERS; EPA; local self-governments; NGOs and media.                    | Upon completion of projects and through periodic evaluation of communication activities.                                         |

### **2.2.6. Coherence**

|                                                                                                                    |                                                                                                                                                                                                                       |
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| <b>Assessment of how the selected policies and measures ensure coherence with plans and programmes established</b> | <p>The selected measures are aligned with:</p> <ul style="list-style-type: none"> <li>• EU objectives in the field of air quality and emission reductions</li> <li>• the NECP and decarbonisation policies</li> </ul> |
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| <b>in other relevant policy areas</b> | <ul style="list-style-type: none"> <li>obligations arising from the Energy Community Treaty.</li> </ul> <p>The measures complement one another and provide synergistic benefits for air quality, climate, energy and public health.</p> |
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### ***2.2.7 Projected combined impact of policies and measures (“with additional measures”) on emission reductions, air quality within national territory and in neighbouring Member States, and on the environment, including related uncertainties***

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                              |                         |                            |
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| <b>Projected fulfilment of emission reduction commitments (“with additional measures”)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Emission projections under the scenario with additional measures (WAM) indicate that Montenegro will achieve significant progress by 2029 in reducing emissions of all major pollutants compared with the 2005 baseline year, with near-complete fulfilment of international and future European obligations under the CLRTAP Convention and Directive (EU) 2016/2284 (NEC). |                         |                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Based on available inventories and modelled projections, the following emission reduction levels relative to 2005 are expected to be achieved by the end of the planning period:                                                                                                                                                                                             |                         |                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Pollutant</b>                                                                                                                                                                                                                                                                                                                                                             | <b>Reduction target</b> | <b>Achievement by 2029</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>SO<sub>2</sub></b>                                                                                                                                                                                                                                                                                                                                                        | <b>≥ 60%</b>            | <b>85–90%</b>              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>NO<sub>x</sub></b>                                                                                                                                                                                                                                                                                                                                                        | <b>≥ 25%</b>            | <b>25–30%</b>              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>NMVOC</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>≥ 10%</b>            | <b>10–15%</b>              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>NH<sub>3</sub></b>                                                                                                                                                                                                                                                                                                                                                        | <b>≥ 25%</b>            | <b>25–30%</b>              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>PM<sub>2.5</sub></b>                                                                                                                                                                                                                                                                                                                                                      | <b>≥ 5%</b>             | <b>2–5%</b>                |
| The greatest contribution to overall emission reductions is expected from implementation of measures related to:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                              |                         |                            |
| <ul style="list-style-type: none"><li>• modernisation of thermal power generation facilities (introduction of BAT technologies and filtration systems);</li><li>• transition to low-sulphur fuels and renewable energy sources;</li><li>• reduction of transport emissions through fleet electrification and improvement of public transport;</li><li>• improved energy efficiency in buildings and public facilities;</li><li>• improved manure management and agricultural waste handling to control ammonia emissions;</li><li>• modernisation of waste and wastewater management systems and reduction of uncontrolled burning.</li></ul> |                                                                                                                                                                                                                                                                                                                                                                              |                         |                            |
| Implementation of the additional measures will result in a stable downward trend in emissions and the maintenance of achieved levels beyond 2030. This ensures long-term compliance with national and international obligations while simultaneously improving air quality and public health.                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                              |                         |                            |

## *Air Quality Management Strategy for the period 2026–2029*

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| <p><b>Use of flexibilities (where applicable)</b></p>                           | <p>Montenegro currently does not have the possibility to make use of this mechanism.</p> <p>Within the assessment of compliance with emission reduction commitments for the period up to 2030, Montenegro currently has no need to actively apply the flexibilities provided for under Article 5 of the EU National Emission Ceilings Directive (NEC, 2016/2284). Emission projections under the “with additional measures” (WAM) scenario indicate that national targets for SO<sub>2</sub>, NO<sub>x</sub>, NMVOC, NH<sub>3</sub> and PM<sub>2.5</sub> will be fully achieved without the use of compensatory mechanisms. However, in the event of unforeseen deviations (e.g. a temporary increase in industrial activity, seasonal emissions from household heating, or agricultural emissions), Montenegro could apply certain flexibilities in accordance with international rules, including:</p> <ul style="list-style-type: none"> <li>• the use of multi-year emission averages to demonstrate compliance with targets, in line with CLRTAP recommendations;</li> <li>• the use of an emission reduction reserve, if actual emissions prove lower than projected values in certain years;</li> <li>• temporary transferable effects between pollutants and sectors, where justified technical and methodological reasons exist (e.g. compensation between SO<sub>2</sub> and NO<sub>x</sub> emissions when switching to gaseous fuels).</li> </ul> <p>The application of these mechanisms would be limited, transparent, and in accordance with international reporting rules (CLRTAP and EMEP), subject to approval by the competent ministry and technical verification by the Environmental Protection Agency.</p> <p>Given the currently favourable trends and the significant impact of the planned measures, the use of flexibilities is not envisaged for the period 2026–2029; instead, the focus remains on the direct fulfilment of emission reduction commitments through implementation of the Programme of Measures.</p> |
| <p><b>Projected improvement in air quality (“with additional measures”)</b></p> | <p>Implementation of the additional measures planned under the Air Protection Programme of Measures 2026–2029 is expected to lead to a moderate improvement in air quality in all urban, industrial and traffic-burdened areas.</p> <p>Modelled projections indicate that, by the end of the planning period, the following results will be achieved compared with 2005:</p> <ul style="list-style-type: none"> <li>• a reduction in average annual PM<sub>2.5</sub> concentrations by 2–5%;</li> <li>• a reduction in NO<sub>x</sub> concentrations by 25–30%;</li> <li>• a significant decrease in SO<sub>2</sub> concentrations;</li> <li>• stabilisation of ground-level ozone (O<sub>3</sub>) concentrations as a result of reduced precursor emissions (NO<sub>x</sub> and NMVOC).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## *Air Quality Management Strategy for the period 2026–2029*

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|                                                                            | <p>The greatest improvements are expected in zones with historically the poorest air quality — Pljevlja, Nikšić, Bijelo Polje and Podgorica — due to the combined impact of measures in the energy, transport, household heating and industrial sectors.</p> <p>The introduction of cleaner fuels, increased energy efficiency and the expansion of district heating, together with vehicle modernisation and the strengthening of public transport, will contribute to reducing concentrations of particulate matter (PM) and nitrogen oxides, which are the primary causes of limit value exceedances and population health problems.</p> <p>According to modelling results, by 2029 the following outcomes are expected:</p> <ul style="list-style-type: none"> <li>• a reduction in the number of days with PM<sub>10</sub> exceedances in Pljevlja from more than 100 to fewer than 35 days per year;</li> <li>• a reduction in seasonal NO<sub>x</sub> concentrations in Podgorica and Nikšić by 30–40%;</li> <li>• an overall reduction of more than 60% in the number of residents exposed to poor air quality compared with 2005.</li> </ul> <p>Implementation of the measures under this Programme will also contribute to improved public health through a reduction in respiratory and cardiovascular diseases associated with exposure to PM<sub>2.5</sub> and NO<sub>x</sub>.</p> <p>Overall, application of the WAM scenario enables Montenegro to achieve partial compliance with national and EU air quality limit values by 2029, while ensuring a sustained trend of improvement beyond 2030.</p> |
| <p><b>Projected environmental impacts (“with additional measures”)</b></p> | <p>The implementation of the additional measures envisaged under the Air Protection Programme of Measures 2026–2029 will have predominantly positive and multi-layered impacts on the environment, as these measures simultaneously contribute to reducing pollutant emissions, mitigating climate change, protecting water, soil and biodiversity, and improving public health.</p> <p><b>Positive impacts</b></p> <p><b>Air quality:</b> Implementation of the planned measures will reduce emissions of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub> and NMVOC, directly improving air quality in urban and industrial zones.</p> <p><b>Climate change:</b> Energy efficiency measures, the transition to renewable energy sources and reduced consumption of fossil fuels will lower CO<sub>2</sub> and other greenhouse gas emissions, thereby contributing to low-carbon development objectives.</p> <p><b>Water and soil:</b> Reduced emissions of atmospheric nitrogen (NO<sub>x</sub>, NH<sub>3</sub>) will decrease eutrophication and acidification of surface waters and soils.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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|                                      | <p>Biodiversity: Reduced deposition of sulphur and nitrogen on sensitive ecosystems (mountain, forest and wetland) will support the protection of natural habitats and reduce species loss.</p> <p>Public health: Lower concentrations of PM and NO<sub>2</sub> will lead to a significant reduction in respiratory and cardiovascular diseases, thereby improving quality of life in areas with historically high pollution levels.</p> <p><b>Possible neutral and temporary impacts</b></p> <p>During the implementation phase of certain infrastructure measures (e.g. modernisation of energy systems, replacement of heating appliances, construction of waste treatment facilities), temporary impacts on soil, noise levels and local traffic may occur. These impacts are limited in duration and are addressed through standard environmental protection measures prescribed in project documentation and national regulations.</p> <p>Fuel substitution and increased use of biomass may have local resource-use implications; however, these effects are minimal and controlled through sustainable biomass supply plans.</p> <p><b>Cumulative impacts</b></p> <p>The overall cumulative effect of implementing the additional measures is assessed as positive at both national and regional levels. Simultaneous reductions in emissions of multiple pollutants (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, NMVOC and NH<sub>3</sub>) contribute to reduced secondary formation of ozone and particulate matter, as well as to reduced transboundary transport of pollution. This supports broader environmental protection objectives under the Convention on Long-range Transboundary Air Pollution (CLRTAP) and the European Green Deal.</p> <p>Based on the analysis conducted, the projected environmental impacts under the “with additional measures” scenario can be assessed as predominantly positive, without significant negative or irreversible consequences. Implementation of the Programme of Measures contributes simultaneously to reducing air pollution, mitigating climate change and enhancing ecosystem services, while producing positive effects on quality of life and public health.</p> |
| <b>Methodology and Uncertainties</b> | <p>The emission assessment, projections and impact analysis were carried out in accordance with the EMEP/EEA Air Pollutant Emission Inventory Guidebook 2019 and the methodological guidance of the Convention on Long-range Transboundary Air Pollution (CLRTAP).</p> <p>For the preparation of projections, data were drawn from:</p> <ul style="list-style-type: none"> <li>• the national air pollutant emission inventory;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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|  | <ul style="list-style-type: none"> <li>• official energy balances of Montenegro and statistical data from MONSTAT;</li> <li>• emission reports from industrial installations (PRTR/IPPC);</li> <li>• transport data (number of vehicles, fuel structure, mileage);</li> <li>• information on fuel consumption in households and agricultural activities;</li> <li>• available studies and air quality reports from the Environmental Protection Agency monitoring network.</li> </ul> <p>The WEM (with existing measures) and WAM (with additional measures) scenarios were developed using a combination of bottom-up and top-down approaches, incorporating assumptions on economic growth, energy consumption and the level of implementation of prescribed measures. Emissions are expressed in kilotonnes (kt) by pollutant and sector, with conversion to the base year 2005.</p> <p>Assessment of air quality improvements was based on dispersion modelling results (Gaussian and Eulerian models) and trend analyses of measurements at monitoring sites in Pljevlja, Podgorica, Nikšić and Bijelo Polje. Impact projections were derived from a combination of statistical analyses, emission factors and expected effects of energy efficiency measures, transport transformation and industrial modernisation.</p> <p><b>Uncertainties</b></p> <p>Although projections were prepared using standard international methodologies, they carry a certain level of uncertainty arising from the following factors:</p> <p>Input data</p> <ul style="list-style-type: none"> <li>• There is no centralised digital repository of all statistical data required for detailed modelling of emitting sectors and subsectors. Data originate from numerous sources and vary in reliability, as not all are validated through uniform procedures.</li> <li>• Full consistency between different data sources (energy balances, transport data, household consumption) is lacking.</li> <li>• Data on actual fuel consumption in households and small combustion installations have limited accuracy.</li> <li>• Emissions from agriculture and waste sectors are partly estimated using generic emission factors.</li> </ul> <p>Methodological assumptions:</p> <ul style="list-style-type: none"> <li>• As projections of energy production and consumption from the NECP were available, a Tier 1 approach was applied to estimate emission scenarios for the key pollutants (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, NMVOC, NH<sub>3</sub>), in</li> </ul> |
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|  | <p>accordance with the recommendations of the EMEP/EEA Guidebook. Emission factors cover a wide range, and the recommended average values were applied.</p> <ul style="list-style-type: none"> <li>• The applied emission factors do not encompass all local conditions (climate, chimney height, combustion technology).</li> <li>• The assumed dynamics of economic and demographic growth may differ from actual developments.</li> <li>• Meteorological variations (temperature inversions, wind, precipitation) may significantly influence local pollutant concentrations.</li> </ul> <p>Implementation of measures:</p> <ul style="list-style-type: none"> <li>• The success of measure implementation depends on institutional capacity, availability of financing and the pace of implementation.</li> <li>• Certain measures (e.g. replacement of heating appliances, electrification of transport) have longer implementation periods and their effects are achieved gradually.</li> </ul> <p>Air quality modelling:</p> <ul style="list-style-type: none"> <li>• The spatial resolution of models limits precision at the micro-local level.</li> <li>• The lack of long-term data series at certain monitoring sites increases uncertainty in model validation.</li> </ul> <p>The overall uncertainty of estimates for key pollutants (SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, NMVOC, NH<sub>3</sub>) is estimated at ±15–30%, which is within the range recommended by the EMEP/EEA Guidebook.</p> <p>In order to reduce the level of uncertainty, the following measures are planned:</p> <ul style="list-style-type: none"> <li>• continuous improvement of the national emission inventory system;</li> <li>• regular revision of methodologies and data every two years;</li> <li>• continuous coordination with institutions that provide sectoral data;</li> <li>• strengthening the capacity of the Environmental Protection Agency and cooperation with local self-government units and industry;</li> <li>• wider application of spatial and temporal emission modelling and inclusion of local measurements in the verification of projections.</li> </ul> |
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## 2.3. National policy framework for air quality and air pollution

### 2.3.1 Policy priorities and their relationship with priorities established in other relevant policy areas

| National emission reduction commitments compared with the base year 2005 (in %) (M)                                                                                                                                                                                                                                                        | SO <sub>2</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | NO <sub>x</sub> | NM VOC | NH <sub>3</sub> | PM <sub>2,5</sub> |
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| 2020–2029 (M)                                                                                                                                                                                                                                                                                                                              | –60%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | –25%            | –10%   | –25%            | –5%               |
| From 2030. (M)                                                                                                                                                                                                                                                                                                                             | –70%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | –55%            | –20%   | –30%            | –20%              |
| <p><b>Air quality-related priorities: national policy priorities linked to EU objectives or national air quality objectives (including limit values and target values and exposure concentration obligations) (M)</b></p> <p><i>Reference may also be made to air quality guidelines recommended by the World Health Organization.</i></p> | <p>National air quality policy priorities in Montenegro are aligned with the obligations set out in the Law on Protection against the Adverse Impacts of Climate Change and Protection of Air Quality, as well as with the requirements of Directive 2008/50/EC on ambient air quality and cleaner air for Europe and Directive (EU) 2016/2284 (NEC) on the reduction of national emissions of certain atmospheric pollutants.</p> <p>The objective of the policy is to achieve sustained improvement in air quality by 2030, reduce population exposure, and fulfil obligations arising from national and international instruments.</p> <p><b>National air quality policy priorities 2026–2029</b></p> <p>Priority 1: permanent reduction of PM<sub>10</sub> and PM<sub>2.5</sub> concentrations in Pljevlja, Nikšić, Bijelo Polje and Podgorica;</p> <p>Priority 2: reduction of emissions from the transport sector and household heating through a transition to cleaner fuels and electrification;</p> <p>Priority 3: strengthening of the monitoring network and timely public information on air quality status;</p> <p>Priority 4: integration of air quality considerations into energy, transport and climate policies;</p> <p>Priority 5: gradual alignment with new EU and WHO standards for the period 2030–2050.</p> <p><b>Exposure concentration obligations</b></p> <p>Montenegro, through the Environmental Protection Agency, implements a system for monitoring and reporting population exposure in accordance with EU directives and EEA recommendations. The objective is to reduce the average population exposure to PM<sub>2.5</sub> particles to below 20 µg/m<sup>3</sup> by 2029, representing significant progress compared with 2020 (approximately 28 µg/m<sup>3</sup>).</p> |                 |        |                 |                   |

## ***Air Quality Management Strategy for the period 2026–2029***

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|                                                                                   | <p>Overall, national air quality policy aims to align with European and global standards for health and environmental protection, through the gradual reduction of emissions, modernisation of energy and transport systems, and the development of sustainable urban environments.</p> <p><b>EU priorities</b></p> <p>Achieving compliance with limit values for concentrations of key pollutants:</p> <ul style="list-style-type: none"> <li>• PM<sub>10</sub>: ≤ 40 µg/m<sup>3</sup> (annual mean); ≤ 50 µg/m<sup>3</sup> (daily mean, not to be exceeded more than 35 days per year);</li> <li>• PM<sub>2.5</sub>: ≤ 25 µg/m<sup>3</sup> (annual mean);</li> <li>• NO<sub>2</sub>: ≤ 40 µg/m<sup>3</sup> (annual mean);</li> <li>• SO<sub>2</sub>: ≤ 125 µg/m<sup>3</sup> (daily mean, not to be exceeded more than 3 days per year);</li> <li>• O<sub>3</sub>: ≤ 120 µg/m<sup>3</sup> (8-hour mean – target value);</li> <li>• Reduction of pollutant emissions in accordance with obligations under the NEC Directive, to be achieved by 2030 compared with 2005 levels: SO<sub>2</sub>: –70%, NO<sub>x</sub>: –55%, NMVOC: –45%, NH<sub>3</sub>: –25%, PM<sub>2.5</sub>: –50%.</li> <li>• Improvement of public health through a reduction in the number of days and the number of people exposed to concentrations exceeding limit and target values.</li> <li>• Alignment with the EU “Zero Pollution Action Plan” (2021) – achieving pollution levels that are no longer harmful to human health and ecosystems.</li> </ul> <p><b>Priorities in line with World Health Organization (WHO, 2021) recommendations</b></p> <p>Montenegro recognises the need for gradual alignment with the stricter WHO guideline values, which are lower than the current EU legal limit values:</p> <ul style="list-style-type: none"> <li>• PM<sub>2.5</sub>: recommended ≤ 5 µg/m<sup>3</sup> (annual mean)</li> <li>• PM<sub>10</sub>: ≤ 15 µg/m<sup>3</sup> (annual mean)</li> <li>• NO<sub>2</sub>: ≤ 10 µg/m<sup>3</sup> (annual mean)</li> <li>• O<sub>3</sub>: ≤ 100 µg/m<sup>3</sup> (maximum 8-hour mean)</li> </ul> <p>These values represent long-term health objectives that will be integrated into national policies through the gradual alignment of legislation and the planning of measures after 2030.</p> |
| <p><b>Relevant priorities related to climate change and energy policy (M)</b></p> | <p>Air quality protection policies in Montenegro are closely linked with priorities in the fields of climate change and energy transition, since a large share of pollutant emissions (particularly SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub> and NMVOC)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

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|  | <p>results from the combustion of fossil fuels in the energy sector, transport and household heating.</p> <p>For this reason, during the period 2026–2029, special attention is given to an integrated approach that simultaneously delivers objectives in the areas of:</p> <ul style="list-style-type: none"><li>• air quality protection,</li><li>• reduction of greenhouse gas (GHG) emissions,</li><li>• improvement of energy efficiency and increased use of renewable energy sources,</li><li>• alignment with the policies of the European Green Deal.</li></ul> <p><b>National climate policy priorities</b></p> <p>Montenegro is committed to achieving climate neutrality by 2050, in accordance with the Law on Climate Change and obligations undertaken under the Paris Agreement. The main priorities are:</p> <ul style="list-style-type: none"><li>• reducing GHG emissions by at least 55% by 2030 compared with 1990 levels (in line with the Nationally Determined Contribution – NDC);</li><li>• gradual phase-out of lignite and coal in electricity generation and transition to clean energy sources;</li><li>• strengthening the resilience of the energy, transport and agriculture sectors to climate change impacts;</li><li>• development of measurement, reporting and verification (MRV) systems for GHG emissions and other air pollutants;</li><li>• promotion of the circular economy and sustainable consumption and production patterns.</li></ul> <p>These measures have a direct synergistic effect with air quality objectives, as reducing fossil fuel consumption simultaneously reduces emissions of SO<sub>2</sub>, NO<sub>x</sub> and particulate matter.</p> <p><b>Energy policy priorities</b></p> <p>In accordance with the National Energy and Climate Plan (NECP), the key priorities in the energy sector are:</p> <ul style="list-style-type: none"><li>• reducing GHG emissions by at least 55% by 2030 compared with 1990 levels;</li><li>• increasing the share of renewable energy sources (RES) to at least 50% of final energy consumption by 2030;</li><li>• significantly improving energy efficiency in buildings, industry and the public sector (reducing primary energy consumption by 20–25%);</li></ul> |
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|  | <ul style="list-style-type: none"> <li>• modernisation and digitalisation of the electricity network and development of smart grids;</li> <li>• Decarbonisation of heating and cooling will prioritise heat pumps, district heating and other low-emission solutions; the use of sustainably sourced biomass should be limited to high-efficiency, low-emission technologies and applied only where air-quality impacts are acceptable and appropriately controlled;</li> <li>• electrification of transport — development of charging infrastructure for electric vehicles and incentives for the purchase of electric and hybrid cars;</li> <li>• integration of the electricity market with the EU market and introduction of carbon pricing mechanisms in line with ETS/CBAM rules.</li> </ul> <p>All of the above measures have a direct effect on reducing emissions of air pollutants, thereby ensuring parallel progress in meeting climate and air quality objectives.</p> <p><b>Synergy between air quality and climate change policies</b></p> <p>Through the integrated implementation of climate and energy policies, multiple benefits are achieved:</p> <ul style="list-style-type: none"> <li>• reduction of air pollution through simultaneous reduction of GHG emissions and pollutants;</li> <li>• reduction of health-related costs and energy expenditure;</li> <li>• increased resilience of cities and communities to climate extremes (heatwaves, droughts, fires);</li> <li>• improved energy security and reduced dependence on fossil fuel imports;</li> <li>• alignment with EU climate legislation and access to energy transition funding.</li> </ul> <p><b>Long-term priorities to 2050</b></p> <ul style="list-style-type: none"> <li>• full decarbonisation of the energy sector and transition to 100% renewable energy sources;</li> <li>• integration of air quality, climate change and energy sectors into a unified planning and reporting system;</li> <li>• implementation of the “Clean Energy for All Europeans” package principles;</li> <li>• alignment with EU climate neutrality objectives for 2050.</li> </ul> <p>In summary, measures aimed at improving air quality simultaneously serve as climate change mitigation and energy transition measures, ensuring alignment of national priorities with the objectives of the European Green</p> |
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## *Air Quality Management Strategy for the period 2026–2029*

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|                                                                                                              | Deal, the Paris Agreement and the World Health Organization recommendations.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Relevant policy priorities in related policy areas, including agriculture, industry and transport (M)</b> | <p>Air quality protection policy in Montenegro is closely linked with sectoral policies that influence pollutant emissions, particularly in the areas of agriculture, industry and transport. Given that these sectors together account for more than 80% of total pollutant emissions, their transformation is essential for achieving the objectives of the Air Pollution Control Programme and fulfilling national obligations towards the EU and international agreements.</p> <p><b>Agriculture</b></p> <p>The agricultural sector plays an important role in emissions of ammonia (NH<sub>3</sub>), methane (CH<sub>4</sub>) and N<sub>2</sub>O, which contribute to acidification, eutrophication and the formation of secondary particulate matter in the air.</p> <p>Relevant policy priorities include:</p> <ul style="list-style-type: none"> <li>• Improving manure and fertiliser management — construction of enclosed storage facilities, covering lagoons, and proper application of fertilisers under optimal weather conditions;</li> <li>• Restricting the burning of crop residues and plant waste, supported by strengthened inspection control;</li> <li>• Promoting precision agriculture and reducing the use of nitrogen fertilisers;</li> <li>• Increasing efficiency in livestock production through improved feeding practices and management of farm wastewater;</li> <li>• Implementing measures from the Rural Development Programme that contribute to emission reductions (e.g. agri-environmental measures, support for renewable energy on farms).</li> </ul> <p>These measures directly contribute to reducing ammonia emissions and secondary PM formation, thereby improving air quality in rural areas.</p> <p><b>Industry</b></p> <p>The industrial sector is a source of SO<sub>2</sub>, NO<sub>x</sub>, PM and NMVOC emissions, particularly in power plants, cement production, metal processing and the manufacture of construction materials.</p> <p>Industrial policy priorities linked to air quality objectives include:</p> <ul style="list-style-type: none"> <li>• Application of Best Available Techniques (BAT) in accordance with the EU Industrial Emissions Directive (IED 2010/75/EU);</li> <li>• Revision and modernisation of IPPC permits and emission monitoring systems;</li> <li>• Gradual decarbonisation of industrial processes, including transition to electricity and hydrogen-based energy;</li> </ul> |

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|  | <ul style="list-style-type: none"> <li>• Reduction of fugitive emissions of volatile organic compounds (NMVOC) through sealing of tanks, ventilation systems and storage facilities;</li> <li>• Promotion of the circular economy and material reuse (reducing waste and energy use per unit of product);</li> <li>• Integration of industry into the national emissions trading system (ETS) in line with preparations for the Carbon Border Adjustment Mechanism (CBAM).</li> </ul> <p>Implementation of these measures reduces emissions from industrial zones and supports compliance with NEC Directive targets for SO<sub>2</sub> and NO<sub>x</sub>.</p> <p><b>Transport</b></p> <p>The transport sector represents one of the largest sources of NO<sub>x</sub>, PM, CO and NMVOC emissions, particularly in urban areas and valleys prone to temperature inversions.</p> <p>Relevant transport policy priorities include:</p> <ul style="list-style-type: none"> <li>• Modernisation and renewal of the vehicle fleet through incentives for electric and hybrid vehicles and restrictions on the import of used vehicles with low Euro standards;</li> <li>• Development of electric vehicle charging infrastructure and implementation of the “clean urban transport” concept;</li> <li>• Improvement of public transport (electric or CNG buses, better coverage of suburban routes);</li> <li>• Construction and reconstruction of cycling and pedestrian infrastructure, particularly in larger cities;</li> <li>• Introduction of low-traffic zones and restrictions on diesel vehicles in urban centres;</li> <li>• Optimising traffic flows and implementing Intelligent Transport Systems (ITS) to reduce congestion and emissions;</li> <li>• Applying environmental standards in public procurement (e.g. “green procurement” for vehicles and public institutional fleets).</li> </ul> <p>These measures enable a significant reduction in NO<sub>x</sub> and PM<sub>2.5</sub> emissions, improve urban air quality and reduce population exposure to traffic-related pollution.</p> <p><b>Common priorities</b></p> <p>Across all three sectors, the following priorities are shared:</p> <ul style="list-style-type: none"> <li>• Reducing the use of fossil fuels and transitioning to renewable energy sources;</li> <li>• Strengthening institutional coordination between sectors (energy, transport, agriculture, industry and environment);</li> </ul> |
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## *Air Quality Management Strategy for the period 2026–2029*

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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|  | <ul style="list-style-type: none"> <li>• Introducing economic instruments (subsidies, emission taxes, eco-charges);</li> <li>• Improving the emissions database and the monitoring of measure effectiveness;</li> <li>• Raising public awareness and educating businesses about the links between sectoral activities and air quality.</li> </ul> <p>By implementing these sectoral priorities, Montenegro achieves synergy between economic modernisation and environmental protection, while reducing emissions of air pollutants and greenhouse gases in line with European and national objectives for the period 2026–2029.</p> |
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### **2.3.2 Competences assigned to national, regional and local bodies**

| <b>List of relevant bodies (M)</b> | <b>Describe the type of body (e.g. environmental inspection authority, regional EPA, municipality) (M)</b> | <b>Describe the competences assigned regarding air quality and air pollution (M)<br/>Select what is applicable:</b><br><br>policy-making tasks, implementation tasks, enforcement tasks (including inspections and permitting, where applicable), reporting and monitoring tasks, coordination tasks, other tasks (please specify) | <b>Sectors of pollution sources for which the body is responsible (O)</b> |
|------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>National bodies (M)</b>         | MERS                                                                                                       | Policy definition and strategic documents in the field of air protection; preparation of regulations and programmes; coordination of implementation of national and international obligations; reporting to the Government, EU and CLRTAP.                                                                                         | All sectors (energy, transport, industry, agriculture, waste).            |
|                                    | EPA                                                                                                        | Air quality monitoring; maintenance of the national emissions register (PRTR); data processing and publication; preparation of annual reports on air quality and compliance.                                                                                                                                                       | All emission sources and all air quality monitoring zones.                |

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|                                      |                                                                  |                                                                                                                                                                                                  |                                                             |
|--------------------------------------|------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|
|                                      | Administration for Inspection Affairs – Environmental Inspection | Inspection supervision of the implementation of air protection legislation; control of installations, combustion plants and mobile sources; issuing orders and measures in cases of exceedances. | All emission sources and all air quality monitoring zones.  |
|                                      | MER                                                              | Development and implementation of energy policies and measures affecting emissions (RES, EE, fuel switching); coordination with MEPPU regarding energy emission projections.                     | Energy, heating, fuel consumption.                          |
|                                      | Ministry of Transport and Maritime Affairs                       | Policies and measures for sustainable transport; regulatory framework for vehicles, fuels and emissions; development of public transport infrastructure and electric mobility.                   | Transport and maritime sector                               |
|                                      | Ministry of Agriculture, Forestry and Water Management           | Manages measures affecting ammonia and methane emissions; implements rural development programmes and agricultural inspection.                                                                   | Agriculture, livestock, fertiliser use                      |
|                                      | Ministry of Health                                               | Monitoring the effects of air pollution on public health; cooperation in risk assessment and public information.                                                                                 | All sectors, health impact aspect                           |
| <b>Regional bodies (M)</b>           | Regional units of the Administration for Inspection Affairs      | Control of installations and facilities in the regions; implementation of inspection measures and monitoring of the implementation of local air protection plans.                                | Industry, energy, municipal sources.                        |
| <b>Bodies on the local level (M)</b> | Municipalities / city administrations                            | Preparation and implementation of local air protection plans and programmes; implementation of measures from the national Programme; local monitoring and reporting to the Agency.               | Transport, household heating appliances, municipal sources. |

## ***Air Quality Management Strategy for the period 2026–2029***

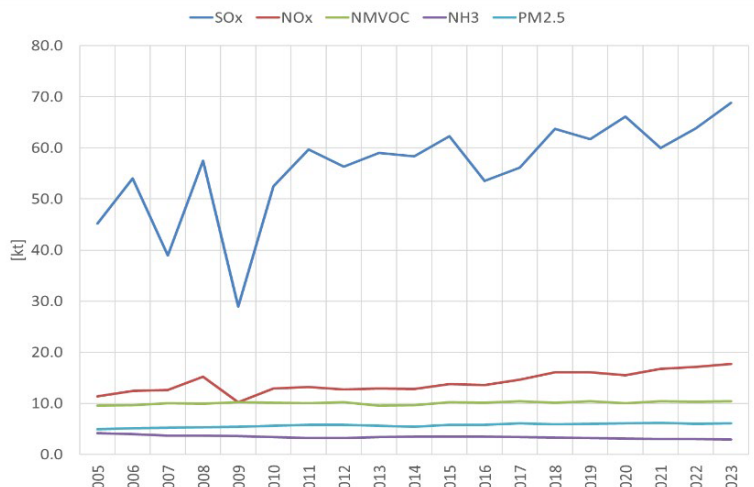
|                               |                                              |                                                                                                                                                                                       |                                                  |
|-------------------------------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
|                               | Public utility companies and public services | Operational implementation of measures to reduce emissions of dust, waste and noise; maintenance of public areas, roads and green zones; control of waste and plant material burning. | Waste, municipal activities, heating, transport. |
|                               | Local inspections and protection services    | Supervision of implementation of local decisions and measures; issuing orders in cases of non-compliance with bans on burning, illegal emissions or noise.                            | Households, small sources, transport.            |
| <b>Add rows if necessary.</b> |                                              |                                                                                                                                                                                       |                                                  |

### **2.4. Progress achieved by policies and measures implemented to date in reducing emissions and improving air quality, and the degree of compliance with national and Union obligations compared with 2005**

#### ***2.4.1. Progress achieved by policies and measures implemented to date in reducing emissions and the degree of compliance with national and Union emission-reduction obligations***

|                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| <b>Describe the progress achieved by policies and measures implemented to date in reducing emissions and the degree of compliance with national legislation and Union legislation in the field of emission reduction (M)</b> | <p>Over the past decade, Montenegro has:</p> <ul style="list-style-type: none"> <li>• established a national system for monitoring and reporting emissions (PRTR, CLRTAP, EMEP),</li> <li>• modernised the thermal power plant in line with IED, IPPC and BAT requirements,</li> <li>• introduced the use of low-sulphur fuels and banned the use of high-sulphur heavy fuel oil,</li> <li>• introduced Euro standards for the import and registration of vehicles,</li> <li>• increased energy efficiency in public buildings and households,</li> <li>• strengthened the air quality monitoring network managed by the Environmental Protection Agency.</li> </ul> <p>From 2005 to 2023, total emissions of air pollutants have generally increased (except NH<sub>3</sub>) by:</p> <ul style="list-style-type: none"> <li>• SO<sub>2</sub>: +52.2%,</li> <li>• NO<sub>x</sub>: +55.7%,</li> <li>• PM<sub>2.5</sub>: +22.5%,</li> <li>• NMVOC: +8.9%,</li> </ul> |
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|                                                                                                                              | <ul style="list-style-type: none"><li>NH<sub>3</sub>: -31%.</li></ul> <p>National legislation is largely aligned with EU legislation, in particular with Directive 2008/50/EC (ambient air quality) and Directive 2016/2284/EU (NEC). Further alignment is planned through the new Law on Climate Change, the adoption of a new Law on Air Quality Protection, and accompanying secondary legislation.</p> <p>Montenegro regularly reports under the EMEP/CLRTAP Convention and, since 2021, has systematically submitted emission projections under WEM and WAM scenarios. Overall progress is assessed as moderate, with a trend towards full compliance with obligations by 2030.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
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| Provide references (chapter and page) to publicly available datasets (e.g. reporting on historical emission inventories) (M) | <p><b>EPA Montenegro (EPA):</b></p> <ul style="list-style-type: none"><li>Annual Air Quality Reports in Montenegro (2015–2023), available at <a href="http://www.epa.org.me">www.epa.org.me</a>;</li><li>National Air Pollutant Emission Inventory (CLRTAP/EMEP reports);</li><li>PRTR database – Pollutant Release and Transfer Register;</li><li>Air Quality Monitoring Portal (automatic monitoring stations, real-time data).</li></ul> <p><b>MONSTAT:</b></p> <ul style="list-style-type: none"><li>Energy balances and fuel consumption statistics by sector (2005–2023);</li><li>EMEP Centre on Emission Inventories and Projections (CEIP);</li><li>Regional emission inventory for South-East Europe (Montenegro – EMEP domain, 2023).</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| Include graphical representations showing emission reductions by pollutant and/or by main sectors (O).                       |  <table><caption>Estimated Emission Data (kt) from 2005 to 2023</caption><thead><tr><th>Pollutant</th><th>2005</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>2019</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th></tr></thead><tbody><tr><td>SOx</td><td>45</td><td>55</td><td>40</td><td>58</td><td>30</td><td>52</td><td>60</td><td>58</td><td>60</td><td>58</td><td>62</td><td>55</td><td>58</td><td>65</td><td>62</td><td>68</td><td>60</td><td>65</td><td>70</td></tr><tr><td>NOx</td><td>12</td><td>13</td><td>14</td><td>15</td><td>10</td><td>13</td><td>14</td><td>13</td><td>14</td><td>13</td><td>14</td><td>14</td><td>15</td><td>16</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td></tr><tr><td>NMVOC</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td></tr><tr><td>NH3</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr><tr><td>PM2.5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr></tbody></table> | Pollutant | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | SOx | 45 | 55 | 40 | 58 | 30 | 52 | 60 | 58 | 60 | 58 | 62 | 55 | 58 | 65 | 62 | 68 | 60 | 65 | 70 | NOx | 12 | 13 | 14 | 15 | 10 | 13 | 14 | 13 | 14 | 13 | 14 | 14 | 15 | 16 | 15 | 16 | 17 | 18 | 19 | NMVOC | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | NH3 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | PM2.5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Pollutant                                                                                                                    | 2005                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2006      | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| SOx                                                                                                                          | 45                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 55        | 40   | 58   | 30   | 52   | 60   | 58   | 60   | 58   | 62   | 55   | 58   | 65   | 62   | 68   | 60   | 65   | 70   |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| NOx                                                                                                                          | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 13        | 14   | 15   | 10   | 13   | 14   | 13   | 14   | 13   | 14   | 14   | 15   | 16   | 15   | 16   | 17   | 18   | 19   |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| NMVOC                                                                                                                        | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10        | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   | 10   |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| NH3                                                                                                                          | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5         | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| PM2.5                                                                                                                        | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5         | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    |      |      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |       |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

**2.4.2. Progress achieved to date through existing policies and measures in improving air quality, and the degree of compliance with national obligations and the obligations of the Union with regard to improving air quality**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| <p><b>Describe the progress achieved to date through existing policies and measures in improving air quality and the degree of compliance with national obligations and the obligations of the Union with regard to air quality, by stating at least the number of air quality zones, out of the total number of air quality zones, that are/are not compliant with EU air quality objectives for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and O<sub>3</sub>, and for all other pollutants for which exceedances occur (M).</b></p> | <p>During the period from the base year (2005) to the most recent reporting year (2023), Montenegro has achieved progress in air quality; however, this progress remains insufficient. In accordance with the current division into air quality zones, three zones are distinguished: the Northern Zone (Pljevlja, Bijelo Polje), the Central Zone (Podgorica, Nikšić), and the Southern Zone (coastal region).</p> <p>NO<sub>2</sub> - In the base year and in 2023, all three zones comply with the EU annual limit value for NO<sub>2</sub> (40 µg/m<sup>3</sup>). Occasionally elevated values are recorded along major traffic corridors in Podgorica and Kotor, but they do not result in systemic non-compliance at the zone level.</p> <p>PM<sub>10</sub> - In the base year, two out of three zones were not compliant (Northern Zone – Pljevlja; partially Central Zone – Podgorica, with exceedances of the daily limit value on more than 35 days per year). In 2023, one out of three zones (Northern Zone – Pljevlja) still does not fully comply with EU PM<sub>10</sub> objectives, while the remaining two zones (Central and Southern) comply with limit values.</p> <p>PM<sub>2.5</sub> - In the base year, two out of three zones exceeded target/annual values for PM<sub>2.5</sub> (Northern and Central Zones). By 2023, two out of three zones (Central and Southern) comply with EU PM<sub>2.5</sub> objectives, while the Northern Zone (Pljevlja and Bijelo Polje) continues to record borderline or slightly elevated winter values associated with individual heating sources and local atmospheric stratification conditions.</p> <p>O<sub>3</sub> (ozone) - In the base year, two out of three zones (Southern Zone and certain mountainous areas of the Northern Zone) recorded occasional exceedances of ozone target values. In 2023, the number of zones with exceedances has decreased: one out of three zones still occasionally exceeds target values (primarily the Southern Zone during summer episodes), but without systemic non-compliance at the national level.</p> <p>Other pollutants (SO<sub>2</sub>, CO, benzene, heavy metals, BaP) - Monitoring data indicate no systemic exceedances of limit values for SO<sub>2</sub>, CO, benzene, or metals across all three zones. Exceedances of benzo(a)pyrene are primarily associated with the Northern Zone (Pljevlja, Bijelo Polje) and are addressed through local air quality plans.</p> |
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## *Air Quality Management Strategy for the period 2026–2029*

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                              | <p>In relation to national and EU obligations, it can be concluded that:</p> <ul style="list-style-type: none"> <li>• compliance has been achieved for NO<sub>2</sub> and most other gaseous pollutants across all zones;</li> <li>• compliance for PM<sub>10</sub> and PM<sub>2.5</sub> has been achieved in two out of three zones, while the Northern Zone remains problematic and represents the focus of Programme measures (local plans for Pljevlja/Bijelo Polje);</li> <li>• compliance for O<sub>3</sub> has improved, with the number of zones experiencing exceedances reduced from two to one, with remaining seasonal episodes in coastal areas.</li> </ul> <p>These results confirm partial fulfilment of air quality obligations, with a clear priority on further reducing PM<sub>10</sub> and PM<sub>2.5</sub> concentrations in the Northern Zone and reducing the duration of ozone episodes in the Southern Zone, in accordance with national air quality plans and the EU Clean Air Directive.</p> |
| <b>Provide full references (chapter and page) to publicly available datasets (e.g. air quality plans, source apportionment of pollution) (M)</b>                                                                                                                                                                                                             | <p>EPA of Montenegro (EPA):<br/> “Annual Air Quality Report in Montenegro, 2024” – Chapter 3 “Air Quality Status by Zones”;<br/> “National Air Pollutant Emission Inventory, 1990–2023”;<br/> Web portal with air quality monitoring data (real-time measurements and historical data).</p> <p>Local air quality plans and/or local environmental protection plans.</p> <p>Transboundary air pollution by sulphur, nitrogen, ozone and particulate matter in 2022.</p> <p>Other reports and studies:<br/> source apportionment analyses where available;<br/> sectoral analyses (transport, household heating, industry) relating to contributions to PM and NO<sub>2</sub>.</p>                                                                                                                                                                                                                                                                                                                                        |
| <b>Maps or histograms showing historical air pollutant concentrations (at least for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and O<sub>3</sub>, as well as any other pollutants of concern) and illustrating, for example, the number of air quality zones that were/are compliant or non-compliant in the base year and the reporting year (O)</b> | <p>Maps or histograms presenting historical air concentrations (at minimum for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and O<sub>3</sub>, as well as for any other pollutant of concern) are typically shown in:</p> <ul style="list-style-type: none"> <li>• maps of spatial distribution of concentrations by zones (e.g. maps with monitoring sites marked and colour-coded concentration classes);</li> <li>• histograms or box-plot charts illustrating the distribution of measurement series (e.g. number of days above 50 µg/m<sup>3</sup> for PM<sub>10</sub>, distribution of 8-hour O<sub>3</sub> values).</li> </ul> <p>For the purposes of this Programme, at minimum the following should be provided:</p>                                                                                                                                                                                                                                                                                      |

## *Air Quality Management Strategy for the period 2026–2029*

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|                                                                                                                                                                      | <ul style="list-style-type: none"> <li>• a map showing air quality zones and monitoring sites;</li> <li>• a histogram or chart for PM<sub>10</sub> and PM<sub>2.5</sub> for Pljevlja, Podgorica and Nikšić for the base year and the most recent reporting year;</li> <li>• a chart of seasonal variation of NO<sub>2</sub> and O<sub>3</sub> by zones.</li> </ul> <p>“Maps and histograms of historical concentrations (NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub>) are presented in Chapter 3.2–3.4 of the Annual Air Quality Report (EPA, 2025) and in Chapters 2.3–2.5 of the local air quality plans for Pljevlja and Podgorica.”</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>If problems have been identified in an air quality zone or zones, describe how progress has been achieved in reducing the highest reported concentrations (O)</b> | <p>In the zones where problems have been identified (primarily Pljevlja, and to some extent Podgorica and Nikšić), progress is visible mainly through:</p> <ul style="list-style-type: none"> <li>• a reduction in the highest daily PM<sub>10</sub> concentrations — the number of days with concentrations above 100 µg/m<sup>3</sup> in Pljevlja has decreased compared with the base year (e.g. from &gt; 40 days to about 15–20 days per year);</li> <li>• a decrease in annual average PM<sub>2.5</sub> values — levels remain close to or above target values, but the trend is downward;</li> <li>• stabilisation of NO<sub>2</sub> levels in traffic-burdened areas of Podgorica and Nikšić, without an increase in peak recorded values;</li> <li>• a slight reduction in the duration of elevated ozone episodes, particularly in the southern and mountainous zones, as a result of partial reductions in precursor emissions.</li> </ul> <p>Progress has been achieved through a combination of:</p> <ul style="list-style-type: none"> <li>• partial modernisation of heating systems and fuel substitution in public buildings;</li> <li>• local traffic management measures and improvements in public transport;</li> <li>• increased control of waste and biomass burning;</li> <li>• public awareness campaigns (particularly in Pljevlja) on the impacts of individual heating sources.</li> </ul> <p>However, the highest recorded PM<sub>10</sub> and PM<sub>2.5</sub> concentrations in Pljevlja still occasionally exceed limit values, indicating the need for additional systemic measures (transition to district heating, heat pumps, reduction of traffic congestion, and remediation of local emission sources).</p> |

### **2.4.3. Transboundary impact of domestic emission sources**

## *Air Quality Management Strategy for the period 2026–2029*

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| <p><b>If applicable, describe the transboundary impact of domestic emission sources (M).</b></p> <p><i>Progress may be reported quantitatively or qualitatively.</i></p> <p><i>If no problems have been identified, state this conclusion.</i></p> | <p>Based on available analyses and emission reports, the transboundary impact of domestic emission sources from Montenegro on neighbouring countries is assessed as not significant, except in limited cases of episodes with elevated PM<sub>10</sub> and ozone concentrations.</p> <p>Due to the small number of large industrial installations and relatively limited emissions in the national context, Montenegro's contribution to total regional deposition of sulphur, nitrogen and secondary particulate matter is estimated at less than 1% in the EMEP model for South-East Europe (reference: EMEP Status Report 2023 – South-East Europe domain).</p> <p>The greatest potential transboundary effects may occur in situations involving:</p> <ul style="list-style-type: none"> <li>• transport of PM<sub>2.5</sub> and PM<sub>10</sub> particles from the Pljevlja area and northern Montenegro towards south-western Serbia and eastern Bosnia and Herzegovina during winter months;</li> <li>• transport of ground-level ozone (O<sub>3</sub>) during summer from the coastal and central parts of Montenegro towards Albania and southern Dalmatia, due to regional meteorological patterns.</li> </ul> <p>EMEP and CAMx models used in regional analyses for the Balkans indicate that cross-border transport of secondary particulates originating from Montenegro is low; however, Montenegro occasionally receives transboundary contributions from thermal power and industrial areas in western Serbia and Bosnia and Herzegovina, which has also been confirmed by measurements of SO<sub>2</sub> and NO<sub>2</sub> concentrations near the northern borders.</p> <p>Conclusion: No significant adverse transboundary impacts of domestic emissions on neighbouring countries have been identified. Montenegro is more often affected by transboundary pollution than it contributes to it.</p> |
| <p><b>If quantitative data are used to describe the results of the assessment, provide the data and methodologies used to carry out the assessment (O).</b></p>                                                                                    | <p>For the assessment of transboundary impacts and the contribution of domestic emissions, the following quantitative data and methodological sources were used:</p> <ul style="list-style-type: none"> <li>• National emission inventory (EPA Montenegro, CLRTAP/EMEP format, 2005–2023);</li> <li>• Emission data from large combustion plants and industrial installations (IPPC and PRTR databases);</li> <li>• Meteorological data from the Institute of Hydrometeorology and Seismology (wind, temperature, inversions, atmospheric stability);</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## Air Quality Management Strategy for the period 2026–2029

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|  | <ul style="list-style-type: none"> <li>Regional EMEP modelling outputs and CEIP results for South-East Europe (resolution <math>0.1^\circ \times 0.1^\circ</math>);</li> <li>The CAMx (Comprehensive Air Quality Model with Extensions) model for assessing the transport and dispersion of PM and O<sub>3</sub>;</li> <li>The methodology from the EMEP/EEA Air Pollutant Emission Inventory Guidebook 2019, used for quantifying emissions by sector and verifying model inputs.</li> </ul> <p>The assessment was based on a combination of qualitative and quantitative analysis, including comparison of annual deposition and emissions across the EMEP grid and modelling of the spatial distribution of concentrations.</p> <p>The results are consistent with regional EMEP reports and indicate that Montenegro complies with its obligations under the CLRTAP Convention regarding the control of transboundary emissions of sulphur, nitrogen and fine particulate matter.</p> |
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### 2.5. Predviđen dalji razvoj uz pretpostavku da ne bude izmjena već donesenih politika i mjera

#### 2.5.1. Predviđene emisije i smanjenja emisija (projekcije sa mjerama)

| Pollutant (M)                                                                                                                                        | Total emissions (kt), in accordance with inventories for year x–2 or x–3 (year to be specified) (M) |       |       |       | Achieved projected percentage (%) reduction in emissions compared with 2005 (M)                                                                                                                                                                                                           |      |      | National emission reduction commitment for the period 2020–2029 (%) (M) | National emission reduction commitment from 2030 (%) (M) |
|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------|-------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------|----------------------------------------------------------|
|                                                                                                                                                      | Base year 2025                                                                                      | 2020  | 2025  | 2030  | 2020                                                                                                                                                                                                                                                                                      | 2025 | 2030 |                                                                         |                                                          |
| SO <sub>2</sub>                                                                                                                                      | 45,19                                                                                               | 66,16 | 19,67 | 6,21  | +47                                                                                                                                                                                                                                                                                       | –56  | –86  | –60                                                                     | –70                                                      |
| NO <sub>x</sub>                                                                                                                                      | 11,36                                                                                               | 15,52 | 8,49  | 10,54 | +37                                                                                                                                                                                                                                                                                       | –25  | –7   | –25                                                                     | –55                                                      |
| NMVOC                                                                                                                                                | 9,59                                                                                                | 10,01 | 9,52  | 8,81  | + 4                                                                                                                                                                                                                                                                                       | –1   | –8   | –10                                                                     | –20                                                      |
| NH <sub>3</sub>                                                                                                                                      | 4,22                                                                                                | 3,15  | 2,98  | 2,88  | – 25                                                                                                                                                                                                                                                                                      | –29  | –32  | –25                                                                     | –30                                                      |
| PM <sub>2.5</sub>                                                                                                                                    | 4,97                                                                                                | 6,06  | 5,51  | 4,96  | + 22                                                                                                                                                                                                                                                                                      | +11  | 0    | –5                                                                      | –20                                                      |
| State the uncertainties associated with projections (with measures) for achieving emission reduction commitments for 2020, 2025 and beyond 2030. (O) |                                                                                                     |       |       |       | <p>The estimated level of uncertainty in the projections is approximately <math>\pm 15</math>–30%, depending on the pollutant and sector. The main sources of uncertainty are:</p> <ul style="list-style-type: none"> <li>unknown dynamics of economic and demographic growth,</li> </ul> |      |      |                                                                         |                                                          |

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|                                         | <ul style="list-style-type: none"> <li>the pace of implementation of energy efficiency measures and fuel switching,</li> <li>changes in the vehicle fleet and traffic flows,</li> <li>climatic variations affecting seasonal energy consumption,</li> <li>methodological differences in emission factors and local combustion conditions.</li> </ul> <p>Projection modelling was carried out in accordance with the methodology of the <i>EMEP/EEA Air Pollutant Emission Inventory Guidebook 2023</i>, using a combined bottom-up approach for the energy and industrial sectors and a top-down approach for transport and agriculture.</p> |
| <b>Date of emission projections (M)</b> | December 2025.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

*If the projected development indicates non-compliance with emission reduction commitments under projections with measures, additional policies and measures considered to achieve compliance are described in Section 2.6.*

### **2.5.2 Projected impact on improving air quality (projections with measures), including the projected degree of compliance**

#### **2.5.2.1 Qualitative description of the anticipated improvement in air quality (M)**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Qualitatively describe the anticipated improvements in air quality and the projected further development of the degree of compliance (projections with measures) with EU air quality objectives for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and O<sub>3</sub>, and for all other pollutants of concern, for 2020, 2025 and 2030. (M)</b></p> <p><b>When describing the projected improvements and the further development of the degree of compliance, provide references (chapter and page) to publicly available datasets (e.g. air quality plans, distribution of pollution sources) (M)</b></p> | <p>The implementation of additional measures from the Air Pollution Control Programme is expected to lead to gradual but clear improvements in air quality and an increased degree of compliance with EU objectives for NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub> and other relevant pollutants in the period up to 2030.</p> <p>By 2020, initial improvement compared with the 2005 baseline had been recorded: in most zones, annual concentrations of NO<sub>x</sub> and SO<sub>2</sub> were fully below EU limit values, while exceedances were mainly associated with PM<sub>10</sub> (Pljevlja, and partially Podgorica) and seasonal PM<sub>2.5</sub>. Target values for O<sub>3</sub> were not systematically exceeded, except for sporadic episodes in the southern and mountainous zones. At this stage, two thirds of the zones were fully compliant for PM<sub>10</sub> and PM<sub>2.5</sub>.</p> <p>By 2025, through further development of energy and transport measures (fuel switching, modernisation of heating systems, partial electrification of transport and local traffic measures), NO<sub>x</sub>, SO<sub>2</sub> and CO are stable and in compliance with EU objectives in all zones. The number of days with exceedances of the daily limit value for PM<sub>10</sub> is significantly reduced in Pljevlja and Podgorica, while annual PM<sub>2.5</sub> concentrations approach target values in the Central and Southern zones. Ozone remains under control, with a slight reduction in the</p> |
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|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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|  | <p>duration of episodes of high concentrations. It is estimated that all three zones will be fully compliant with EU objectives for PM<sub>10</sub> and PM<sub>2.5</sub>, while the remaining problematic area (Pljevlja) shows a clear downward trend.</p> <p>By 2030, with the full implementation of additional measures (wider replacement of individual heating systems, development of district heating, further electrification of transport, and the application of best available techniques in industry), full compliance of all zones with EU limit values for NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> is projected, as well as stable attainment of target values for O<sub>3</sub>. The highest recorded concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> in Pljevlja and other urban centres are expected to decline, the number of days with exceedances to fall below 35 per year, and annual mean values to fall within the range of compliance with EU requirements. For other pollutants (benzene, heavy metals, PAHs), systemic exceedances are not expected; instead, further reductions in concentrations are anticipated as a result of fuel and technology modernisation.</p> <p>Progress and projections are based on publicly available data and documents, including: the Environmental Protection Agency's Annual Air Quality Reports (chapters on zone-specific status and concentration trends), the national air pollutant emissions inventory (chapters on emissions by sector), as well as local air quality plans and action plans for Pljevlja, Podgorica and other municipalities (chapters on source apportionment and measures). These references provide the quantitative basis for the qualitative description of expected improvements and the further development of the degree of compliance up to 2020, 2025 and 2030.</p> |
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*Air Quality Management Strategy for the period 2026–2029*

**2.5.2.2 Quantitative description of the anticipated improvement in air quality (O)**

| Values from the Air Quality Directive      | Projected number of non-compliant air quality zones |      |      |      | Projected number of compliant air quality zones |      |      |      | Total number of air quality zones |      |      |      |
|--------------------------------------------|-----------------------------------------------------|------|------|------|-------------------------------------------------|------|------|------|-----------------------------------|------|------|------|
|                                            | Specify the base year (2005)                        | 2020 | 2025 | 2030 | Specify the base year (2005)                    | 2020 | 2025 | 2030 | Specify the base year (2005)      | 2020 | 2025 | 2030 |
| PM <sub>2.5</sub> (annual)                 | 2                                                   | 1    | 1    | 0    | 1                                               | 2    | 2    | 3    | 3                                 | 3    | 3    | 3    |
| NO <sub>2</sub> (annual)                   | 1                                                   | 0    | 0    | 0    | 2                                               | 3    | 3    | 3    | 3                                 | 3    | 3    | 3    |
| PM <sub>10</sub> (annual)                  | 2                                                   | 1    | 1    | 0    | 2                                               | 2    | 3    | 3    | 3                                 | 3    | 3    | 3    |
| O <sub>3</sub> (maximum daily 8-hour mean) | 1                                                   | 1    | 0    | 0    | 2                                               | 2    | 3    | 3    | 3                                 | 3    | 3    | 3    |
| Other (specify)                            | 0                                                   | 0    | 0    | 0    | 3                                               | 2    | 3    | 3    | 3                                 | 3    | 3    | 3    |

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### **2.6 Policy options considered to meet emission reduction commitments for 2020 and 2030 and the interim emission levels for 2025**

*The information required in this chapter shall be provided using the Policies and Measures Tool made available for this purpose by the European Environment Agency.*

#### **2.6.1 Details of the policies and measures considered to meet emission reduction commitments (reporting at the level of policies and measures)**

##### **Overview of the link between operational objectives and measures from the Programme of Measures**

Below, for methodological clarity and monitoring of implementation following the model of reporting templates for strategic documents, the link between strategic objectives, operational objectives, indicators and measures M1-M12 is presented. This table clarifies that the marks M1-M12 are measures/packages of measures, and not operational objectives.

| <b>STRATEGIC OBJECTIVE</b>   | <b>OPERATIONAL OBJECTIVE</b>                                                                                         | <b>OPERATIONAL INDICATOR</b>                                                                                                          | <b>OBJECTIVE</b> | <b>MEASURES/PACKAGES OF MEASURES FROM THE PROGRAMME OF MEASURES</b>                                                                                                                                           |
|------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>STRATEGIC OBJECTIVE 1</b> | 1.A - reduction of concentrations of suspended particles and benzo(a)pyrene content in the Northern Air Quality Zone | Number of exceedances of the daily PM10 limit value and annual mean values of PM2.5 and BaP at monitoring sites in the Northern Zone. |                  | M1, M6, M7 and related local measures from air quality plans.                                                                                                                                                 |
| <b>STRATEGIC OBJECTIVE 1</b> | 1.B - reduction of benzo(a)pyrene content in suspended particles in the Central Air Quality Zone                     | Annual mean BaP values in PM10 and the trend of PM10/PM2.5 concentrations in the Central Zone.                                        |                  | M7, M8, M9, M10 and local measures for transport and heating.                                                                                                                                                 |
| <b>STRATEGIC OBJECTIVE 1</b> | 1.C - reduction of emissions of pollutants (NO <sub>x</sub> , SO <sub>2</sub> , NMVOC, NH <sub>3</sub> and PM2.5)    | Percentage reduction of national emissions compared with 2005, by pollutant.                                                          |                  | Measures that directly reduce emissions from energy, transport, households, agriculture and waste (M1, M2, M3, M5, M6, M7, M8, M9, M10, M11 and M12).                                                         |
| <b>STRATEGIC OBJECTIVE 2</b> | 2.A - improvement of the quality of data on air quality and emissions of pollutants into the air                     | Degree of availability, completeness and timeliness of data from monitoring, emission                                                 |                  | Measures to improve air quality monitoring, emission inventories, projections, air quality modelling, QA/QC procedures and digitalisation of data implemented by MERS, EPA and other competent institutions.. |

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|                              |                                                                                                                                      |                                                                                                                                    |                                                                                                                                                                                                                                                                        |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |                                                                                                                                      | inventories, projections and modelling.                                                                                            |                                                                                                                                                                                                                                                                        |
| <b>STRATEGIC OBJECTIVE 2</b> | 2.B - improvement of cooperation among relevant institutions, local self-government units, civil society and the professional public | Number of sessions of the coordination body held, implementation reports and joint activities of competent authorities.            | Operational objective 2.B is achieved horizontally through the implementation of all Programme measures, with the application of the mechanisms of institutional coordination, data exchange, reporting and cooperation defined by the Strategy and the Action Plan.   |
| <b>STRATEGIC OBJECTIVE 2</b> | 2.C - further alignment with stricter air quality standards                                                                          | Number of prepared/adopted regulations, roadmaps and methodological documents for the application of new EU air quality standards. | Measures relating to the transposition of Directive (EU) 2024/2881 and Directive (EU) 2016/2284, preparation of a roadmap, preparation of an implementation plan, use of derogation mechanisms and other regulatory activities envisaged by the Programme of Measures. |

| Name and brief description of individual policies and measures, or packages of policies and measures (M) | Pollutant(s) addressed, select as applicable SO <sub>2</sub> , NO <sub>x</sub> , NMVOCs, NH <sub>3</sub> , PM <sub>2.5</sub> (M); BC as a component of PM <sub>2.5</sub> , other (e.g. Hg, dioxins, GHG) (O) – specify | Objectives of individual policies and measures, or packages of policies and measures (*) (M) | Types of policies and measures (^) (M) | Primary and, where applicable, additional sectors addressed (†) (M) | Implementation period (O for measures selected for implementation) |     | Body or bodies responsible for implementation (O for measures selected for implementation)<br>Where applicable, indicate those from the list in Table 2.3.2. |      | Details of the methodologies used for the analysis (e.g. specific models or methods, baseline data) (M) | Quantified expected emission reductions (for individual policies and measures, or for packages of policies and measures, as applicable) (kt, annual, or as a range, compared with projections with measures) (M) | Cost<br><br>Total implementation period cost | Qualitative description of uncertainties (M, if any) |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------------|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|
|                                                                                                          |                                                                                                                                                                                                                        |                                                                                              |                                        |                                                                     | Start                                                              | End | Type                                                                                                                                                         | Name |                                                                                                         |                                                                                                                                                                                                                  |                                              |                                                      |
|                                                                                                          |                                                                                                                                                                                                                        |                                                                                              |                                        |                                                                     |                                                                    |     |                                                                                                                                                              |      |                                                                                                         | 2029                                                                                                                                                                                                             | EUR                                          |                                                      |

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|                                                                                                |                                                                                |                                                                                                                                                                                |                                                                         |                   |      |      |                                                                                                |                                            |                                                                                                                         |                                                                                                                              |               |                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------|------|------|------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M1 Reconstruction of the Pljevlja Thermal Power Plant and plan for its future operation</b> | SO <sub>2</sub> , NO <sub>x</sub> , NMVOC, PM <sub>2.5</sub>                   | Reduction of emissions from the thermal power plant through environmental reconstruction (installation of FGD and DeNOx systems) and limitation of plant operation after 2026. | Emission control at source; regulatory; technical; investment; planning | Energy production | 2024 | 2026 | Thermal power plant operator; competent ministry                                               | EPCG, MEIR                                 | Reconstruction project; NECP energy and emissions modelling; statutory limitation under the Law on Industrial Emissions | NO <sub>x</sub> – 5.4 kt, NMVOC – 0.01 kt, SO <sub>2</sub> – 73 kt, PM <sub>2.5</sub> – 0.06 kt                              | 54,500,000    | Low – dependent on the pace of works and technical validation; largely implemented                                                                                                                                                                                     |
| <b>M2. New RES power plants (wind, solar)</b>                                                  | SO <sub>2</sub> , NO <sub>x</sub> , NMVOC, NH <sub>3</sub> , PM <sub>2.5</sub> | Increase in RES capacity (≥600 MW by 2030), replacing fossil-based generation                                                                                                  | Technical; planning; investments; economic instruments                  | Energy production | 2024 | 2030 | Competent ministry; state electricity company; private investors; transmission system operator | MEIR; EPCG; private investors; CGES; CEDIS | NECP WAM scenario; wind and solar park projects; decentralised generation by prosumers                                  | NO <sub>x</sub> – 0.08 kt; NMVOC – 0.73 kt; SO <sub>2</sub> – 0.2 kt; NH <sub>3</sub> – 0.01 kt; PM <sub>2.5</sub> – 0.69 kt | 1,500,000,000 | Moderate – dependent on grid connection capacity and investor interest<br><br>Estimated emission reductions assume conservative uptake and timely grid connection; lower investor interest or delayed connections would reduce the achieved effect in the WAM scenario |

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|                                                      |                                                                                |                                                                                                      |                                                         |                                              |      |      |                                                                                                |                                     |                                                                      |                                                                                                                              |             |                                                                                                                                                                                                                           |
|------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------|----------------------------------------------|------|------|------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>M3. RES auctions and additional capacity</b>      | SO <sub>2</sub> , NO <sub>x</sub> , NMVOC, NH <sub>3</sub> , PM <sub>2.5</sub> | Establishment of an auction system for allocation of RES projects (≥200 MW)                          | Economic instruments; regulatory; technical; investment | Energy production                            | 2026 | 2030 | Competent ministry; state electricity company; private investors; transmission system operator | MEIR; EPCG; private investors; CGES | Cost model per MWh; auction data                                     | NO <sub>x</sub> – 0.1 kt; NMVOC – 0.97 kt; SO <sub>2</sub> – 0.2 kt; NH <sub>3</sub> – 0.01 kt; PM <sub>2.5</sub> – 0.99 kt  | 180,000,000 | Low – strong investor interest; tender prepared                                                                                                                                                                           |
| <b>M4. Development of ETS/CP mechanisms</b>          | SO <sub>2</sub> , NO <sub>x</sub> , PM <sub>2.5</sub>                          | Establishment of a national emissions trading scheme aligned with the EU ETS and exemption from CBAM | Economic; regulatory                                    | Energy; industrial processes                 | 2026 | 2030 | Competent ministries; state electricity company                                                | MEIR; MF; EPCG                      | ETS model analysis; carbon price projections; CBAM impact assessment | Negligible                                                                                                                   | Negligible  | Moderate – legal and institutional uncertainty; ongoing implementation; significant impact on the national electricity utility due to coal-based generation; favourable for a just transition in the Pljevlja coal region |
| <b>M5. Rehabilitation of small hydropower plants</b> | SO <sub>2</sub> , NO <sub>x</sub>                                              | Rehabilitation of SHPPs to increase efficiency and reduce emissions                                  | Technical; investment; planning                         | Energy production                            | 2024 | 2028 | State electricity company; competent ministry                                                  | EPCG; MEIR                          | Revitalisation projects; local assessments                           | SO <sub>2</sub> – 1 kt; NO <sub>x</sub> – 0.1 kt                                                                             | 800,000     | Low – dependent on hydrology; largely implemented                                                                                                                                                                         |
| <b>M6. District heating in Pljevlja</b>              | PM <sub>2.5</sub> , SO <sub>2</sub> , NMVOC, NH <sub>3</sub>                   | Replacement of individual heating systems and installation of a central heating system               | Technical; investment; regulatory; planning             | Energy consumption; municipal infrastructure | 2025 | 2030 | Local self-government; state electricity company                                               | Municipality of Pljevlja; EPCG      | Project feasibility study; local inventory                           | NO <sub>x</sub> – 0.09 kt; NMVOC – 0.77 kt; SO <sub>2</sub> – 0.3 kt; NH <sub>3</sub> – 0.01 kt; PM <sub>2.5</sub> – 0.73 kt | 23,000,000  | Moderate – dependent on the number of connected users; an alternative solution must be defined in the event of                                                                                                            |

### Air Quality Management Strategy for the period 2026–2029

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|                                                                 |                                                                                |                                                                                             |                                                                     |                    |      |      |                                                                                                                                    |                                                |                                                                                                                                       |                                                                                                                               |             | discontinuation of coal use for energy production                                                                     |
| <b>M7. Energy efficiency in buildings</b>                       | PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , NMVOC, NH <sub>3</sub> | Reconstruction of public and residential buildings (low-emission technologies)              | Technical; planning; investments; economic instruments; information | Energy consumption | 2024 | 2030 | Competent ministries; local self-governments; Environmental Protection Fund; bodies responsible for management of public buildings | MEIR; Eco Fund; municipalities; MPNI; MZ; UzDI | NECP EE model; SECAP data; data from international financiers (EBRD, KfW, WB); Eco Fund data; local energy plans; Reform Agenda 2.2.1 | NO <sub>x</sub> – 0.05 kt; NMVOC – 0.56 kt; SO <sub>2</sub> – 0.18 kt; NH <sub>3</sub> – 0.01 kt; PM <sub>2.5</sub> – 0.69 kt | 88,800,000  | Low – limited financing; strong interest; funding available                                                           |
| <b>M8. Promotion of e-mobility</b>                              | NO <sub>x</sub> , PM <sub>2.5</sub> , NMVOC, NH <sub>3</sub>                   | Increase in the number of electric vehicles and chargers; modernisation of the public fleet | Economic instruments; investments; technical; information           | Transport          | 2024 | 2030 | Competent ministries; Environmental Protection Fund; state electricity distribution company                                        | MS; MEIR; Eco Fund; CEDIS                      | NECP transport model; EV projections                                                                                                  | NO <sub>x</sub> – 0.18 kt; NMVOC – 0.03 kt; NH <sub>3</sub> – 0.003 kt; PM <sub>2.5</sub> – 0.01 kt                           | 353,000,000 | Moderate – dependent on the vehicle market, availability and price of EVs, and development of charging infrastructure |
| <b>M9. Introduction of a mandatory biofuel share</b>            | NO <sub>x</sub> , PM <sub>2.5</sub> , NMVOC, NH <sub>3</sub>                   | Biofuel share of ≥10% in transport by 2030                                                  | Regulatory; fiscal                                                  | Transport          | 2026 | 2030 | Competent ministries                                                                                                               | MEIR; MS                                       | Energy Law; Regulation on mandatory biofuel share and sustainability criteria; consumption statistics                                 | NO <sub>x</sub> – 0.42 kt; NMVOC – 0.08 kt; NH <sub>3</sub> – 0.01 kt; PM <sub>2.5</sub> – 0.03 kt                            | Negligible  | Low – dependent on supply                                                                                             |
| <b>M10. Ban on import of Euro 4 and lower standard vehicles</b> | NO <sub>x</sub> , PM <sub>2.5</sub> , NMVOC, NH <sub>3</sub>                   | Ban on the import of low-standard vehicles to modernise the fleet                           | Regulatory                                                          | Transport          | 2025 | 2030 | Competent ministries and authorities                                                                                               | MEIR; MUP; Customs Administration              | Rulebook on technical requirements for vehicles first placed on the market in Montenegro;                                             | NO <sub>x</sub> – 0.09 kt; NMVOC – 0.02 kt; NH <sub>3</sub> – 0.001 kt; PM <sub>2.5</sub> – 0.01 kt                           | Negligible  | Low – supervision required                                                                                            |

### Air Quality Management Strategy for the period 2026–2029

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|                                                                                |                                            |                                                                                                                       |                                                       |                                                   |      |      |                                              |                      | fleet assessment                                                                                      |            |                                                   |                                                                                                                                                                                                                                                                                                                                   |
| <b>M11. Manure management and organic agriculture</b>                          | NH <sub>3</sub>                            | Establishment of a code of good agricultural practice and low-emission techniques                                     | Voluntary agreements; education; technical assistance | Agriculture                                       | 2025 | 2030 | Competent ministry and agency                | MPŠiV; IPARD Agency  | UNECE NH <sub>3</sub> Code; IPARD III framework; Agriculture and Rural Development Strategy 2023–2028 | Negligible | 990,000                                           | Moderate – limited capacity of small farms<br><br>Given the predominance of small farms, implementation risk is significant; this will be mitigated through exemptions where justified, targeted subsidies, advisory support, simplified compliance requirements and phased implementation so as to avoid disproportionate burden |
| <b>M12. Reduction of biowaste and increased connection to sewerage systems</b> | NH <sub>3</sub> , NMVOC, PM <sub>2.5</sub> | Biowaste recycling, methane utilisation at managed landfills, closure of unmanaged landfills, local sewerage projects | Planning; technical; investments                      | Waste management; municipal wastewater management | 2024 | 2030 | Competent ministries; local self-governments | MERS; municipalities | National Waste Management Plan 2024–2028; Municipal Wastewater Management Plan (2020–2035)            | Negligible | No cost estimate available; costs are significant | Moderate – dependent on maintenance and costs; high investment and technical requirement                                                                                                                                                                                                                                          |

## Air Quality Management Strategy for the period 2026–2029

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|  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  | The expected reductions are contingent on securing investment finance, technical design and maintenance capacity; if these enabling conditions are not met, the achieved reductions will be lower than estimated |
|  |  |  | Add new rows where necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                                                                                                                                                                  |
|  |  |  | Responses in fields marked with the symbols (*), (^) and (†) shall be completed using the provided possible answers aligned with reporting obligations under Regulation (EU) No 525/2013 on a mechanism for monitoring and reporting greenhouse gas emissions and Implementing Regulation (EU) No 749/2014.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |                                                                                                                                                                                                                  |
|  |  |  | <ol style="list-style-type: none"> <li>1. Energy production: <ul style="list-style-type: none"> <li>— increase in energy production from renewable sources;</li> <li>— switch to fuels with lower carbon intensity;</li> <li>— increase in energy production from non-renewable low-carbon sources (nuclear energy);</li> <li>— reduction of losses;</li> <li>— improvement of efficiency in the energy and energy transformation sector;</li> <li>— installation of systems/application of technologies to reduce emissions;</li> <li>— energy production – other.</li> </ul> </li> <li>2. Energy consumption: <ul style="list-style-type: none"> <li>— improvement of the energy efficiency of buildings;</li> <li>— improvement of the energy efficiency of appliances;</li> <li>— improvement of energy efficiency in the services/tertiary sector;</li> <li>— improvement of end-use energy efficiency in the industrial sector;</li> </ul> </li> </ol> |  |  |  |  |  | <ol style="list-style-type: none"> <li>4. Industrial processes: <ul style="list-style-type: none"> <li>— installation of systems/application of technologies to reduce emissions;</li> <li>— improved control of fugitive emissions from industrial processes;</li> <li>— industrial processes – other.</li> </ul> </li> <li>5. Waste management/waste: <ul style="list-style-type: none"> <li>— management of waste management services/reduction of demand;</li> <li>— increase in recycling rates;</li> <li>— improvement of waste treatment technologies;</li> <li>— improvement of landfill management;</li> <li>— waste incineration with energy recovery;</li> <li>— improvement of wastewater management systems;</li> <li>— reduction of landfill disposal;</li> <li>— waste – other.</li> </ul> </li> </ol> |  |  |                                                                                                                                                                                                                  |

## *Air Quality Management Strategy for the period 2026–2029*

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|  | <ul style="list-style-type: none"> <li>— demand management/reduction of consumption;</li> <li>— energy consumption – other.</li> </ul> <p>3. Transport:</p> <ul style="list-style-type: none"> <li>— installation of emission reduction devices in vehicles, vessels and aircraft;</li> <li>— improvement of energy efficiency of vehicles, vessels and aircraft;</li> <li>— shift to public transport or non-motorised transport;</li> <li>— alternative fuels for vehicles, vessels and aircraft (including electric vehicles);</li> <li>— demand management/reduction of demand;</li> <li>— improvement of transport behaviour patterns/traffic culture;</li> <li>— improvement of transport infrastructure;</li> <li>— transport – other.</li> </ul>                                                                                                              | <p>6. Agriculture:</p> <ul style="list-style-type: none"> <li>— application of plant nutrition products (mineral fertilisers and manure) with reduced emissions;</li> <li>— other activities improving the management of arable land;</li> <li>— improvement of livestock management and housing facilities;</li> <li>— improvement of animal waste management systems;</li> <li>— agriculture – other.</li> </ul> <p>7. Cross-sectoral:</p> <ul style="list-style-type: none"> <li>— framework policy;</li> <li>— multi-sectoral policy;</li> <li>— cross-sectoral – other.</li> </ul> <p>8. Other: — Member States must provide a brief description of the objective.</p> |
|  | <p>Responses in the field marked with the symbol (^) shall be completed by selecting the appropriate predefined option (more than one policy and measure may be selected, and additional policies and measures may be described under “other”) (M):</p> <ul style="list-style-type: none"> <li>— Emission control at source;</li> <li>— Economic instruments;</li> <li>— Fiscal instruments;</li> <li>— Voluntary or negotiated agreements;</li> <li>— Information;</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>— Regulatory;</li> <li>— Education;</li> <li>— Research;</li> <li>— Planning;</li> <li>— Other, must be specified.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|  | <p>Responses in the field marked with the symbol (†) shall be completed by selecting the appropriate predefined option (more than one sector may be selected, and additional sectors may be described under “other”) (M):</p> <ul style="list-style-type: none"> <li>— energy production (includes fuel extraction, transmission, distribution and storage, as well as heat and electricity generation);</li> <li>— energy consumption (includes fuel and electricity consumption by end users such as households, the services sector, industry and agriculture);</li> <li>— transport;</li> <li>— industrial processes (includes industrial activities in which materials are physically or chemically transformed, resulting in greenhouse gas emissions, the use of greenhouse gases in products, and the non-energy use of carbon from fossil fuels);</li> </ul> | <ul style="list-style-type: none"> <li>— agriculture;</li> <li>— waste management/waste;</li> <li>— cross-sectoral;</li> <li>— other sectors; must be specified.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

## *Air Quality Management Strategy for the period 2026–2029*

### **2.6.4. Additional details relating to measures referred to in Part 2 of Annex III to Directive (EU) 2016/2284 aimed at achieving compliance of the agricultural sector with emission reduction commitments**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Are the policy and measure included in the National Air Pollution Control Programme?<br/>Yes/No (M)</b>                                         | <b>If yes,<br/>— indicate the chapter/page in the programme<br/>(M)</b> | <b>Have the policy and measure been implemented as planned?<br/>Yes/No (M)</b><br><br><b>If not, describe how they have been modified (M)</b>                                                                      |
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| <b>A Measures to control ammonia emissions (M)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                    |                                                                         |                                                                                                                                                                                                                    |
| 1. Member States shall establish a national advisory code of good agricultural practice for the control of ammonia emissions, taking into account the UNECE Framework Code for Good Agricultural Practice for Reducing Ammonia Emissions (2014), covering at least the following:<br><br>(a) nitrogen management, taking account of the entire nitrogen cycle;<br>(b) livestock feeding strategies;<br>(c) low-emission manure spreading techniques;<br>(d) low-emission manure storage systems;<br>(e) low-emission animal housing systems;<br>(f) options for limiting ammonia emissions from the use of mineral fertilisers. | Establishment of a national advisory code of good agricultural practice for ammonia emission control, in line with the UNECE Framework Code (2014) | Chapter 2                                                               | Yes. The code will be developed under the IPARD III measure 'Green Rural Development'; it will include nitrogen management, livestock feeding, and low-emission manure spreading and storage.                      |
| 2. Member States may establish a national nitrogen balance to monitor changes in overall losses of reactive nitrogen from agriculture, including ammonia, nitrous oxide, nitrates and nitrites, based on the principles set out in the UNECE Guidance Document on Nitrogen Budgets.                                                                                                                                                                                                                                                                                                                                             | Introduction of a nitrogen balance to monitor losses of reactive nitrogen from agriculture                                                         | Chapter 2                                                               | No, in preparation. To be introduced through the Sustainable Fertiliser Use Plan 2026–2030 in cooperation with the Environmental Protection Agency and the Ministry of Agriculture, Forestry and Water Management. |
| 3. Member States shall prohibit the use of ammonium carbonate fertilisers and may reduce ammonia emissions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Ban on the use of ammonium carbonate fertilisers and promotion of ammonium nitrate fertilisers                                                     | Chapter 2                                                               | Yes. Ban introduced from 2027; subsidies for fertiliser                                                                                                                                                            |

### *Air Quality Management Strategy for the period 2026–2029*

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| <p>from inorganic fertilisers through the following approaches:</p> <p>(a) replacing urea-based fertilisers with ammonium nitrate fertilisers;</p> <p>(b) where urea-based fertilisers continue to be used, applying methods demonstrated to reduce ammonia emissions by at least 30% compared with the reference method, as set out in the Ammonia Guidance Document;</p> <p>(c) promoting the replacement of inorganic fertilisers with organic fertilisers and, where inorganic fertilisers continue to be used, applying them in accordance with the foreseeable nutrient requirements of the relevant crops or grassland with regard to nitrogen and phosphorus, taking into account existing nutrient content in the soil and nutrients from other fertilisers.</p>                                                                                                                                                                                                             |                                                                                               |           | substitution provided under IPARD Measure 7.                                                                                                                                                  |
| <p>4. Member States may reduce ammonia emissions from manure through the following approaches:</p> <p>(a) reducing emissions from the application of liquid and solid manure to arable land and grassland by using methods that reduce emissions by at least 30% compared with the reference method described in the Ammonia Guidance Document, subject to the following conditions:</p> <p>i. manure and liquid manure shall be applied only in accordance with the foreseeable nutrient requirements of the relevant crops or grassland with regard to nitrogen and phosphorus, taking into account existing nutrient content in the soil and nutrients from other fertilisers;</p> <p>ii. manure and liquid manure shall not be applied to land that is waterlogged, flooded, frozen or snow-covered;</p> <p>iii. liquid manure applied to grassland shall be spread using trailing hose, trailing shoe, or shallow or deep injection techniques; iv. manure and liquid manure</p> | Reduction of emissions from manure through control of application, storage and animal feeding | Chapter 2 | Yes, partially. The measures are being introduced gradually: covering of storage facilities and incorporation into the soil within four hours of application will become mandatory from 2028. |

### *Air Quality Management Strategy for the period 2026–2029*

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| <p>applied to arable land shall be incorporated into the soil within four hours of application;</p> <p>(b) reducing emissions from manure storage outside animal housing through the following approaches:<br/>i. for liquid manure storage facilities constructed after 1 January 2022, the use of low-emission storage systems or techniques demonstrated to reduce ammonia emissions by at least 60% compared with the reference method described in the Ammonia Guidance Document, and for existing liquid manure storage facilities by at least 40%;<br/>ii. covering solid manure storage facilities;<br/>iii. ensuring sufficient manure storage capacity for agricultural holdings so that manure can be applied only during periods suitable for crop growth;</p> <p>(c) reducing emissions from animal housing by using systems demonstrated to reduce ammonia emissions by at least 20% compared with the reference method described in the Ammonia Guidance Document;</p> <p>(d) reducing emissions from manure through animal feeding strategies using low-protein feed demonstrated to reduce ammonia emissions by at least 10% compared with the reference method described in the Ammonia Guidance Document.</p> |                                                                                             |           |                                                                                                                                               |
| <b>B Measures to reduce emissions for the control of fine particulate matter (PM<sub>2.5</sub>) and black carbon (BC) (M)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                             |           |                                                                                                                                               |
| 1. Without prejudice to Annex II on cross-compliance of Regulation (EU) No 1306/2013 of the European Parliament and of the Council <sup>(1)</sup> , Member States may prohibit the open burning of agricultural residues, waste from harvesting and forest residues. Member States shall monitor and enforce any prohibition implemented in accordance with the first subparagraph. Any exemptions from such a prohibition shall be limited to preventive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Ban on the open burning of agricultural residues, waste from harvesting and forest residues | Chapter 2 | Yes. The ban was introduced by the Law on Agricultural Land (2021); inspections are carried out by the Administration for Inspection Affairs. |

### *Air Quality Management Strategy for the period 2026–2029*

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| programmes aimed at avoiding uncontrolled wildfires, pest control or the preservation of biodiversity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                               |           |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>2. Member States may establish a national advisory code of good agricultural practice for the proper management of harvest residues, based on the following approaches:</p> <p>(a) improving soil structure through the incorporation of harvest residues;</p> <p>(b) improving techniques for the incorporation of harvest residues;</p> <p>(c) alternative uses of harvest residues;</p> <p>(d) improving nutrient status and soil structure through the incorporation of manure, where necessary, in order to achieve optimal plant growth and thereby avoid the burning of manure (manure, straw bedding).</p> | Establishment of an advisory code of good practice for the management of harvest residues                     | Chapter 2 | No, planned for 2026. It will be developed under IPARD Measure 5.2 and the Rural Advisory Programme, with a focus on incorporation and alternative use of harvest residues.                                                                                                                                                                                                                                        |
| <b>C Prevention of impacts on small agricultural holdings (M)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |           |                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>When implementing the measures described in sections A and B, Member States shall ensure that impacts on small and micro agricultural holdings are fully taken into account. Member States may, for example, exempt small and micro agricultural holdings from these measures where possible and appropriate in view of the applicable reduction commitments (M).</b>                                                                                                                                                                                                                                              | Consideration of the socio-economic constraints of small and micro holdings in the implementation of measures | Chapter 2 | <p>Yes. Small producers (up to 10 livestock units) will be exempt from the obligation to cover manure storage facilities, with priority subsidies and technical assistance provided through IPARD III.</p> <p>This approach is intended to avoid disproportionate burden on small farms while maintaining the effectiveness of the measure through priority subsidies, technical assistance and gradual uptake</p> |

## Air Quality Management Strategy for the period 2026–2029

### 2.7 Policies selected for adoption by sector, including the timetable for their adoption, implementation and review, and the responsible competent authorities

#### 2.7.1 Individual policies and measures, or packages of individual policies and measures, selected for adoption and the responsible competent authorities

| Name and brief description of individual policies and measures, or packages of policies and measures (M)<br><i>Where applicable, indicate those from the list in Table 2.6.1.</i> | Currently planned year of adoption (M) | Relevant comments based on consultations related to individual policies and measures, or packages of policies and measures (O) | Planned implementation timetable to date (M) |          | Interim target values and indicators selected to monitor progress in the implementation of the selected policies and measures (O) |                                                                                                                                           | Currently projected review timetable (if different from the general update of the National Air Pollution Control Programme every four years) (M) | Competent authorities responsible for individual policies and measures, or packages of policies and measures (M)<br><i>Where applicable, indicate those from the list in Table 2.3.2.</i> |
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|                                                                                                                                                                                   |                                        |                                                                                                                                | start year                                   | end year | interim target values                                                                                                             | indicators                                                                                                                                |                                                                                                                                                  |                                                                                                                                                                                           |
| <b>M1 – Reconstruction of the Pljevlja TPP and future operation plan – environmental reconstruction, FGD and DeNO<sub>x</sub>, limited operation after 2026</b>                   | 2025                                   | Comments related to economic costs and security of supply; a phased approach was accepted.                                     | 2024                                         | 2026     | By the end of 2026, SO <sub>2</sub> emissions reduced by ≥ 80% compared with 2023.                                                | Annual SO <sub>2</sub> , NO <sub>x</sub> and PM <sub>2.5</sub> emissions from the Pljevlja TPP; number of PM exceedance days in Pljevlja. | 2028 and every four years thereafter                                                                                                             | EPCG; MEIR; EPA                                                                                                                                                                           |
| <b>M2 – New RES power plants – construction of new wind and solar plants (≥ 600 MW by 2030)</b>                                                                                   | 2025                                   | Public and investor support; comments related to siting and biodiversity impacts.                                              | 2025                                         | 2030     | By 2029, at least 400 MW of new RES capacity in operation.                                                                        | Installed RES capacity (MW); RES generation (GWh/year).                                                                                   | 2029                                                                                                                                             | MEIR; EPCG; private investors; Energy Regulatory Agency                                                                                                                                   |
| <b>M3 – Additional RES capacity and auctions – introduction of an</b>                                                                                                             | 2026                                   | Comments relate to auction design and risk allocation; to be addressed in                                                      | 2026                                         | 2030     | By 2029, at least two successfully completed auctions                                                                             | Number of auctions; contracted MW; signed PPAs.                                                                                           | 2028                                                                                                                                             | MEIR; Eco Fund; Energy Regulatory Agency                                                                                                                                                  |

### *Air Quality Management Strategy for the period 2026–2029*

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| auction system and additional 200 MW of contracted RES projects                                                                                                   |      | secondary legislation.                                                                      |      |      | and ≥ 200 MW contracted.                                                                    |                                                                                                           |      |                                                                                            |
| <b>M4 – Development of CP/ETS mechanisms – introduction of a national emissions trading system aligned with EU ETS/CBAM</b>                                       | 2026 | Economic operators request phased implementation and competitiveness protection mechanisms. | 2026 | 2028 | ETS established by 2028; covering at least the energy sector and large industrial emitters. | Adoption of ETS legislation; number of installations covered; auction revenues.                           | 2029 | MEORRS; MEIR; Ministry of Finance; EPA                                                     |
| <b>M5 – Rehabilitation of small hydropower plants (increased efficiency) – reconstruction and modernisation of existing SHPPs</b>                                 | 2025 | Local communities request strict assessment of impacts on watercourses.                     | 2025 | 2029 | ≥ 70% of existing SHPPs rehabilitated by 2029.                                              | Number of rehabilitated SHPPs; electricity generation (GWh) before/after.                                 | 2029 | EPCG; MER; municipalities                                                                  |
| <b>M6 – District heating in Pljevlja – construction of a district heating system and household connections</b>                                                    | 2025 | Citizens request affordable prices and connection subsidies.                                | 2025 | 2029 | By the 2029/30 heating season, ≥ 60% of households in the system area connected.            | Number of connected users; household coal/wood consumption; PM <sub>2.5</sub> concentrations in Pljevlja. | 2028 | Municipality of Pljevlja; Eco Fund; MEIR; public utility company/district heating operator |
| <b>M7 – Energy efficiency in buildings and public infrastructure – deep renovation of public and residential buildings, EE public lighting and infrastructure</b> | 2024 | Positive comments; increased funding for the residential sector expected.                   | 2024 | 2029 | By 2029, ≥ 30% of public buildings and ≥ 10% of the housing stock renovated.                | Number and floor area of renovated buildings (m <sup>2</sup> ); energy savings (MWh/year).                | 2027 | MEIR; Eco Fund; municipalities; Ministry of Spatial Planning, Urbanism and State Property  |
| <b>M8 – Promotion of e-mobility – EV subsidies, charging</b>                                                                                                      | 2024 | Automotive sector requests predictable incentive schemes;                                   | 2024 | 2029 | Share of EVs in newly registered vehicles ≥ 15% by                                          | Number of EVs; number of chargers; NO <sub>x</sub> and                                                    | 2027 | MEIR; Ministry of Transport;                                                               |

### ***Air Quality Management Strategy for the period 2026–2029***

|                                                                                                                                                                         |      |                                                                                                           |      |                                  |                                                                                                                      |                                                                                                                 |      |                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------------------------------------|------|----------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------------|
| <b>infrastructure development, replacement of public sector fleets</b>                                                                                                  |      | citizens request wider geographic coverage of chargers.                                                   |      |                                  | 2029; at least 200 public chargers.                                                                                  | PM <sub>2.5</sub> emissions from transport.                                                                     |      | Eco Fund; municipalities                                                  |
| <b>M9 – Introduction of a mandatory biofuel share in fuel supply – minimum 10% biofuels by 2030</b>                                                                     | 2026 | Some fuel distributors raised concerns regarding costs and logistics; a transitional period is envisaged. | 2026 | 2030                             | Biofuel share in fuel supply $\geq 5\%$ by 2029.                                                                     | Biofuel share (%) in total fuel consumption; NMVOC and NO <sub>x</sub> emissions from transport.                | 2029 | Ministry of Transport; MEIR; fuel distributors                            |
| <b>M10 – Ban on the import of older vehicles (Euro 4 and lower standard)</b>                                                                                            | 2025 | Comments from importers of used vehicles; the measure retained due to significant air quality benefits.   | 2025 | 2029 (continuous implementation) | From 2026 all imported vehicles at least Euro 5; from 2028 target Euro 6.                                            | Vehicle fleet structure by standards; average vehicle age.                                                      | 2028 | Ministry of Transport; Customs Administration; Police Directorate         |
| <b>M11 – Support for manure management and organic agriculture – measures to reduce NH<sub>3</sub> in line with the UNECE code</b>                                      | 2026 | Farmers request higher subsidies and longer transition periods; incorporated into IPARD III.              | 2026 | 2029                             | By 2029 $\geq 40\%$ of commercial farms apply low-emission techniques; increase organic farming area to $\geq 5\%$ . | Number of farms applying the code; area under organic farming (ha); NH <sub>3</sub> emissions from agriculture. | 2029 | Ministry of Agriculture, Forestry and Water Management; IPARD Agency; EPA |
| <b>M12 – Reduction of biowaste and increased connection to the sewerage system – biowaste recycling, closure of unmanaged landfills, expansion of sewerage networks</b> | 2025 | Local authorities and NGOs request faster closure of old landfills and development of recycling centres.  | 2025 | 2029                             | By 2029 reduce the share of biowaste in landfills to $\leq 30\%$ ; sewerage connection rate $\geq 85\%$ .            | Share of biowaste in municipal waste; number of remediated/closed landfills; sewerage connection rate.          | 2028 | MEORRS; municipalities; public utility companies; Eco Fund                |

*Add new rows where necessary.*

**2.7.2 Reasons for the selection of measures and an assessment of how the selected policies and measures ensure coherence with plans and programmes established in other relevant policy areas**

|                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Reasons for selecting the measures considered in section 2.6.1 in order to determine the final set of selected measures (O)</b></p>                    | <p>The selected policies and measures (M1–M12) represent the outcome of an integrated approach that combines the objectives of the National Energy and Climate Plan (NECP).</p> <p>The reasons for their selection are as follows:</p> <ul style="list-style-type: none"> <li>• Emission efficiency and compliance with NEC objectives – the selected measures directly contribute to the reduction of SO<sub>2</sub>, NO<sub>x</sub>, PM<sub>2.5</sub>, NMVOC and NH<sub>3</sub> emissions in line with national commitments for the period 2026–2029 and beyond 2030.</li> <li>• Technical and economic feasibility – the measures were selected on the basis of existing capacities (EPCG, Eco Fund, municipalities) and the availability of financial instruments (IPA III, WBIF, EBRD, GCF, IPARD).</li> <li>• Focus on sectors with the highest emission contributions – energy, transport, household heating and agriculture account for more than 80% of total PM<sub>2.5</sub>, SO<sub>2</sub> and NH<sub>3</sub> emissions.</li> <li>• Socio-economic balance – the measures take into account impacts on employment and income, particularly in Pljevlja and the northern region, through just transition programmes.</li> <li>• Alignment with EU transition obligations – the selected set of measures supports the accession process under Chapter 27 and alignment with Directives 2016/2284, 2008/50/EC and 2010/75/EU.</li> </ul> |
| <p><b>Coherence of the selected policies and measures with national air quality objectives and, where appropriate, in neighbouring Member States (M)</b></p> | <p>The measures are fully aligned with national air quality objectives defined in:</p> <ul style="list-style-type: none"> <li>• the Law on Air Protection (Official Gazette of Montenegro, Nos. 25/10, 40/11, 43/15);</li> <li>• the Air Quality Improvement Programme (Pljevlja, Nikšić, Podgorica).</li> </ul> <p>The specific measures achieve:</p> <ul style="list-style-type: none"> <li>• reduction of PM<sub>2.5</sub> and PM<sub>10</sub> concentrations in Pljevlja and Podgorica by 2029;</li> <li>• reduction of NO<sub>x</sub> emissions from transport (M8, M10) and SO<sub>2</sub> emissions from the energy sector (M1);</li> <li>• limitation of NH<sub>3</sub> and PM<sub>2.5</sub> emissions from agriculture (M11, M12);</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## *Air Quality Management Strategy for the period 2026–2029*

|                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>regional coherence: the measures are aligned with Energy Community initiatives and the Western Balkans Regional Air Quality Action Plan (2023–2030).</li> </ul> <p>Cross-border assessments (EMEP model) confirm that the implementation of M1–M12 contributes to reducing the transport of pollutants to neighbouring countries (Bosnia and Herzegovina, Serbia, Albania), thereby strengthening regional cooperation and reducing transboundary pollution.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Coherence of the selected policies and measures with other relevant plans and programmes established pursuant to requirements under national or Union legislation (e.g. national energy and climate plans) (M)</b> | <p>The selected measures are aligned with the following planning and strategic documents:</p> <ul style="list-style-type: none"> <li>National Energy and Climate Plan of Montenegro (NECP 2030) – measures M1–M12 are directly drawn from the “Policies and Measures” (PaM) chapter.</li> <li>Law on Climate Change (2025) – establishes the legal framework for ETS, MRV and low-carbon development.</li> <li>Transport Development Strategy 2019–2035 – measures M8, M9, M10.</li> <li>IPARD III Programme 2021–2027 – measure M11 (manure management and organic production).</li> <li>Waste Management Plan 2023–2028 – measure M12.</li> <li>Local air quality plans (Pljevlja, Nikšić, Podgorica) – synchronised with national measures M1, M6 and M7.</li> </ul> <p>This ensures both horizontal and vertical coherence between air quality policies, climate measures, the energy transition and socio-economic development plans.</p> |

## **2.8 Projected combined impact of policies and measures (“with additional measures”) on emission reductions, air quality and the environment, and the associated uncertainties (where applicable)**

### ***2.8.1 Projected attainment of emission reduction commitments (“with additional measures”)***

| Pollutant<br>a (M) | Total emissions (kt), in accordance<br>with inventories for year x–2 or x–3;<br>specify the year (M) |       |       |      | Achieved percentage<br>(%) emission reduction<br>compared with 2005<br>(M) |      |      | National<br>emission<br>reduction<br>commitment<br>for the period<br>2020–2029<br>(%) (M) | National<br>emission<br>reduction<br>commitment<br>from 2030 (%)<br>(M) |
|--------------------|------------------------------------------------------------------------------------------------------|-------|-------|------|----------------------------------------------------------------------------|------|------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
|                    | Base<br>year<br>2025                                                                                 | 2020  | 2025  | 2030 | 2020                                                                       | 2025 | 2030 |                                                                                           |                                                                         |
| SO <sub>2</sub>    | 45,19                                                                                                | 66,16 | 19,57 | 4,68 | +47                                                                        | –57  | –90  | –60                                                                                       | –70                                                                     |
| NO <sub>x</sub>    | 11,36                                                                                                | 15,52 | 8,49  | 7,59 | +37                                                                        | –25  | –33  | –25                                                                                       | –55                                                                     |

## Air Quality Management Strategy for the period 2026–2029

|                                  |      |       |      |               |      |     |     |     |     |
|----------------------------------|------|-------|------|---------------|------|-----|-----|-----|-----|
| NM VOC                           | 9,59 | 10,01 | 9,38 | 8,38          | + 4  | –2  | –13 | –10 | –20 |
| NH <sub>3</sub>                  | 4,22 | 3,15  | 2,98 | 2,88          | – 25 | –29 | –32 | –25 | –30 |
| PM <sub>2,5</sub>                | 4,97 | 6,06  | 5,24 | 4,55          | + 22 | +5  | –8  | –5  | –20 |
| Date of emission projections (M) |      |       |      | December 2026 |      |     |     |     |     |

### 2.8.2 Non-linear emission reduction trajectory

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>If a non-linear emission reduction trajectory is followed, demonstrate that it is technically or economically more efficient (alternative measures would involve disproportionate costs), that it will not jeopardise compliance with the 2030 reduction commitment, and that the trajectory from 2025 will converge towards the linear reduction trajectory (M, where appropriate).</b></p> <p><i>Where applicable, indicate the costs from the list in Table 2.6.3.</i></p> | <p>Montenegro applies a non-linear emission reduction trajectory for certain pollutants, in particular SO<sub>2</sub> and PM<sub>2.5</sub>, due to the phased implementation of key measures in the period 2026–2029.</p> <p>This non-linearity is technically and economically justified because:</p> <ul style="list-style-type: none"> <li>the largest reduction in SO<sub>2</sub> is projected after 2025, when the reconstruction of the Pljevlja Thermal Power Plant will be completed and the flue gas desulphurisation system fully operational;</li> <li>reductions in PM<sub>2.5</sub> emissions are achieved gradually through the introduction of district heating in Pljevlja (2025–2028) and the reduction of household coal burning from 2027;</li> <li>in the transport sector, NO<sub>x</sub> reductions show a mildly linear trend, with acceleration after 2028 owing to the introduction of Euro 6/VI standards and the growing share of electric vehicles;</li> <li>for NM VOC and NH<sub>3</sub>, changes are quasi-linear, as measures in agriculture and industry are introduced progressively through IPARD III and new regulations on VOC content.</li> </ul> <p>Cost assessments for the implementation of measures (from Table 2.6.3) show that a linear trajectory towards 2030 would require disproportionately higher investment costs in 2025–2029, particularly in the energy and district heating sectors. The applied non-linear trajectory enables:</p> <ul style="list-style-type: none"> <li>optimised phased investment,</li> <li>avoidance of economic shocks in sectors with high capital requirements;</li> <li>partial achievement of the 2030 reduction target without the risk of non-compliance.</li> </ul> <p>The emission reduction trajectory is not linear in the period 2020–2025; however, from 2025 onwards it converges towards a linear trend towards the 2030 targets, thereby ensuring the partial fulfilment of the emission reduction commitments established for Montenegro.</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### **2.8.3 Flexibilities**

|                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Where flexibilities are used, indicate how they are applied (M)</b></p> | <p>Montenegro currently does not use the formal flexibility mechanisms provided for in Article 5 of Directive (EU) 2016/2284, as national projections to 2030 indicate partial fulfilment of emission reduction commitments for all pollutants through national measures.</p> <p>However, the Government retains the possibility of applying bilateral or regional flexibility mechanisms in accordance with Article 5(2) of the Directive, particularly within cooperation with Energy Community Contracting Parties (Serbia, North Macedonia, Albania, Bosnia and Herzegovina) in relation to:</p> <ul style="list-style-type: none"> <li>• joint emission reduction projects in the energy and transport sectors;</li> <li>• exchange of data on emissions and transboundary pollution transport (EMEP model);</li> <li>• potential compensation of SO<sub>2</sub> and PM<sub>2.5</sub> emissions through regional programmes for the modernisation of thermal power generation capacities.</li> </ul> <p>Montenegro will report any use of flexibilities to the European Commission and the Energy Community Secretariat in accordance with the standard format set out in Decision (EU) 2018/1522.</p> |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 9. INFORMATION FOR THE PUBLIC ON THE OBJECTIVES AND EXPECTED EFFECTS OF THE STRATEGY

The Air Quality Management Strategy with the Action Plan for the period 2026–2029 aims to improve air quality in Montenegro, protect public health and fulfil obligations arising from the process of accession to the European Union. Given that air pollution directly affects citizens' quality of life, one of the key commitments of this Strategy is to ensure transparent public information on its objectives, planned measures and expected effects.

This chapter presents, in a clear and understandable manner, to citizens, the economy and other interested parties the reasons for adopting the Strategy, its key objectives, and the benefits expected from its implementation.

### *Importance of the Strategy for citizens*

Air quality is one of the most important factors affecting human health, particularly that of children, older persons and people with chronic illnesses. Long-term exposure to elevated concentrations of particulate matter, benzo(a)pyrene and other pollutants is associated with an increased risk of respiratory and cardiovascular diseases, as well as higher rates of premature mortality.

The Air Quality Management Strategy 2026–2029 provides a systemic response to these challenges through clearly defined objectives, measures and institutional responsibilities, with a particular focus on zones where exceedances of limit and target values for air quality have been recorded.

Measures from the Action Plan have a direct impact on the energy sector, construction, transport, agriculture and local services. In energy, significant investments and modernization are expected, especially through the reconstruction of TPP Pljevlja, development of district heating, renewable energy sources and small hydropower projects. In construction and industry, energy efficiency measures open a market for contractors, installers and equipment manufacturers. In transport, there is expected to be a need for investment in e-mobility and adaptation of logistics models, while the agricultural sector will have additional requirements regarding the management of ammonia emissions. Positive effects are reflected in modernization, energy savings, new green market opportunities and employment, while negative effects may be reflected in adjustment costs for certain business entities.

The Strategy does not create new business barriers, but it may represent a certain administrative burden, especially for local self-government units in the area of coordinating implementation and reporting on implemented measures. The positive consequences of improving air quality, including benefits for human health, the environment, productivity and energy efficiency, justify the costs of implementing the measures.

*Objectives of the Strategy*

The main objective of the Strategy is to improve air quality in all air quality zones in Montenegro, while strengthening the system for monitoring, management and public information.

Citizens can contribute to improving air quality through:

- reducing concentrations of particulate matter PM<sub>10</sub> and PM<sub>2.5</sub> and levels of benzo(a)pyrene in zones where exceedances occur;
- reducing emissions of pollutants from key sectors, in particular household heating, energy and transport;
- improving the air quality monitoring system and emissions inventories;
- gradual alignment with the new, stricter European Union air quality standards entering into force from 2030.

*Expected benefits for citizens*

Implementation of the Strategy is expected to deliver multiple benefits for citizens and society as a whole, including:

- a reduction in the number of days with excessively polluted air, particularly during the winter period;
- improvement in public health and a reduction in the risk of diseases associated with air pollution;
- long-term reduction in healthcare system costs;
- improvement in quality of life and the attractiveness of urban areas;
- better public information and timely warnings in cases of increased pollution;
- strengthening public trust in the work of institutions and the implementation of environmental protection policies.

*Expected effects during the implementation period of the Strategy*

In the period 2026–2029, the following are expected:

- continuation of the downward trend in concentrations of particulate matter PM<sub>10</sub> and PM<sub>2.5</sub> in the Northern and Central air quality zones;
- gradual reduction of benzo(a)pyrene content in particulate matter;
- reduction of emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds and particulate matter;
- strengthening of institutional and technical capacities for monitoring and managing air quality;
- improvement in the quality and availability of data on air quality and pollutant emissions;

## ***Air Quality Management Strategy for the period 2026–2029***

- improved coordination between national and local levels in the implementation of measures.

Taking into account the complexity of the problem and the socio-economic context, the Strategy represents a realistic phased approach towards achieving long-term objectives for air protection and human health.

### ***Role of citizens in the implementation of the Strategy***

Successful implementation of the Strategy depends not only on the activities of competent institutions but also on the active participation of citizens. Citizens can contribute to improving air quality through:

- rational energy use and switching to cleaner heating options wherever possible;
- reducing individual use of motor vehicles and using public transport or sustainable forms of mobility;
- monitoring air quality information through official channels;
- participation in public consultations and local initiatives related to air protection.

### ***Transparency and public information***

Air quality data in Montenegro are available to the public in real time via the website of the Environmental Protection Agency, as well as through regular reports and announcements issued by the competent institutions. Reports on the implementation of the Strategy will be publicly available, thereby ensuring transparency and enabling the monitoring of accomplished results.

The Air Quality Management Strategy 2026–2029 represents an important step towards a healthier living environment and the sustainable development of Montenegro. Its successful implementation requires a joint effort by institutions, local self-governments, the business sector and citizens, with a shared objective — cleaner air and a better quality of life for present and future generations.

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## ANNEX 1

### A. INFORMATION TO BE INCLUDED IN AIR QUALITY PLANS AND AIR QUALITY ACTION PLANS<sup>24</sup>

#### **1. Location of excessive pollution**

- (a) region;
- (b) city/cities (maps);
- (c) monitoring stations (map, geographical coordinates).

#### **2. General information**

- (a) type of zone (urban, industrial or rural area) or characteristics of the spatial unit (NUTS) if the plan is prepared at the level of a statistical region (including urban, industrial or rural areas);
- (b) estimate of the size of the polluted area (km<sup>2</sup>) and the number of inhabitants exposed to pollution;
- (c) concentrations of the relevant pollutant or the average exposure indicator for that pollutant, recorded for at least five years prior to the exceedance, compared with the most recent data, including their comparison with limit values or with the average exposure reduction obligation and the target average exposure concentration.

#### **3. Competent authorities**

Names and addresses of the competent authorities responsible for the preparation and implementation of air quality plans or air quality action plans.

#### **4. Origin of pollution, taking into account reporting under Directive (EU) 2016/2284 and information provided in the national air pollution control programme**

- (a) list of the main emission sources responsible for pollution;
- (b) total quantity of emissions from these sources (tonnes/year);
- (c) assessment of emission levels (e.g. urban level, regional level, national level and transboundary transport);

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<sup>24</sup> Annex VIII to Directive (EU) 2024/2881 of the European Parliament and of the Council of 23 October 2024 on ambient air quality and cleaner air for Europe

(d) source apportionment by relevant sectors contributing to the exceedance, as defined in the national air pollution control programme.

- 5. Description of the baseline scenario on which the air quality plan or action plan is based, demonstrating the consequences of inaction, including the projected development of emissions and concentrations.**
- 6. Identification of air pollution reduction measures that may be considered in the selection process and detailed information on those measures:**

(a) a list and description of all measures considered in the air quality plan or action plan, including identification of the competent authority responsible for their implementation;  
(b) quantification or estimation of emission reductions (in tonnes/year) and, where available, reductions in concentrations for each measure referred to in point (a).

- 7. Selected measures and their expected effect in achieving compliance within the prescribed time limits:**

(a) a list of selected measures, including a list of information (such as modelling results and assessment of measures) to achieve the relevant air quality standard; if the list of measures referred to in point 6 includes measures with potentially high potential to improve air quality that were not selected for adoption, an explanation of the reasons why such measures were not selected;  
(b) the timetable for implementation of each measure and the responsible entities;  
(c) quantification of emission reductions (in tonnes/year) achieved through the combination of measures referred to in point (a) of this point;  
(d) expected quantified reductions in concentrations (in  $\mu\text{g}/\text{m}^3$ ) at each sampling point where limit values, target values or the average exposure indicator are exceeded, in the case of exceedance of the average exposure reduction obligation, resulting from the package of measures referred to in point (a) of this point;  
(e) an indicative compliance timetable and the estimated year of compliance per air pollutant covered by the air quality plan or action plan, taking into account the package of measures referred to in point (a) of this point;  
(f) for action plans and air quality plans, the reasons explaining how such plans identify measures to ensure that the exceedance period is kept as short as possible, including the implementation timetable.

- 8. Annex 1 to air quality plans or action plans – additional supporting information**

(a) climatic data;  
(b) topographical data;  
(c) information on the type of objectives in the zone that require protection, where applicable;  
(d) a list and description of all additional measures whose full effect on air pollutant

concentrations is expected within three years or more;

(e) socio-economic information on the area concerned in order to promote environmental equity and the protection of sensitive populations and vulnerable groups;

(f) a description of the method applied and the assumptions or data used for projections of air quality development, including, where possible, the margin of uncertainty of projections and sensitivity scenarios to take into account best-case, most likely and worst-case scenarios;

(g) supporting documentation and information used for the assessment.

**9. Annex 2 to air quality plans or action plans:**

A summary of measures for informing and consulting the public, their results and an explanation of how those results were taken into account in the final plan.

**10. Annex 3 to air quality plans or action plans: Evaluation of measures (in the case of an update of an air quality plan)**

(a) assessment of deadlines for measures from the previous air quality plan;

(b) assessment of the effect of measures from the previous air quality plan on reducing emissions and concentrations of pollutants.

**B. Indicative list of air pollution reduction measures**

1. Information on the status of implementation of air quality legislation.

2. Information on all air pollution reduction measures whose implementation has been considered at local, regional or national level in relation to achieving air quality objectives, such as:

(a) reduction of emissions from stationary sources by ensuring that small and medium polluting combustion installations (including biomass) are equipped with emission control equipment or replaced, and by improving the energy efficiency of buildings;

(b) reduction of emissions from vehicles through retrofitting with zero-emission propulsion systems and emission control equipment; the introduction of economic incentives to accelerate vehicle adaptation should be considered;

(c) public procurement, in accordance with the Green Public Procurement Handbook, of fuels, combustion equipment for emission reduction and zero-emission vehicles;

(d) reduction of emissions through the introduction of zero- and low-emission vehicles in shared and public transport or vehicles equipped with modern digital solutions contributing to emission reductions;

(e) measures to improve the quality, efficiency, affordability and connectivity of shared and public transport;

(f) measures to support the deployment and use of alternative fuel infrastructure;

(g) measures to limit emissions from transport, particularly through urban planning and traffic management, including:

- i. congestion charging, such as tolls and kilometre-based user charges;
- ii. selection of road surface materials;
- iii. parking charges on public land or other economic incentives, as well as differentiated charges for polluting vehicles and zero-emission vehicles;
- iv. establishment of vehicle access restriction systems in cities, including low-emission zones and zero-emission zones;
- v. establishment of low-traffic neighbourhoods, superblocks and car-free districts;
- vi. introduction of car-free streets;
- vii. mechanisms to achieve zero (tailpipe) emissions during the “last mile”;
- viii. promotion of car sharing and car pooling;
- ix. introduction of intelligent transport systems;
- x. creation of multimodal hubs linking different sustainable transport solutions and parking facilities;
- xi. promotion of cycling and walking, for example by expanding space for cyclists and pedestrians, prioritising cycling and walking in infrastructure planning, and expanding the network of cycling routes;
- xii. planning of compact cities;

(h) measures to encourage a shift towards active mobility and less polluting modes of transport (e.g. walking, cycling, public transport or rail), including:

- i. electrification of public transport, strengthening public transport networks and simplifying access to and use of public transport, for example through digital and integrated booking and real-time transport information;
- ii. ensuring seamless intermodality for commuting between rural and urban areas, for example between rail and cycling, and between cars and public transport (such as “park and ride” schemes);
- iii. redirecting fiscal and economic incentives towards active and shared mobility, including incentives for cycling and walking to work;
- iv. programmes for the withdrawal from use of the most polluting vehicles;
  - (i) measures to encourage a transition to zero-emission vehicles and non-road mobile machinery for private and commercial use;
  - (j) measures to ensure priority is given to low-emission fuels in small, medium and large stationary sources and mobile sources;
  - (k) measures to reduce air pollution from industrial sources in accordance with Directive 2010/75/EU and through the application of economic instruments such as taxes, charges or emissions trading, while taking into account the specific characteristics of SMEs;
  - (l) reduction of emissions from maritime and air transport through the use of alternative fuels and the deployment of alternative fuel infrastructure, as well as the use of economic incentives to accelerate their uptake, and the establishment of specific requirements for boats and ships at berth and port traffic, while accelerating shore-side electricity supply and the electrification of vessels and port equipment;

- (m) measures to reduce emissions from agriculture;
- (n) measures to protect the health of children and other sensitive populations and vulnerable groups;
- (o) measures to encourage behavioural change.

## ANNEX 2

### ADDITIONAL SUPPORTING INFORMATION FOR AIR QUALITY PLANS

#### Climatic characteristics

An overview of the basic climatic conditions of a wider area can best be presented through the Köppen climate classification<sup>25</sup>.

#### *Climates in the territory of Montenegro*

**1. *Climate / Köppen climate formula Csa:***

Temperate warm rainy climate with hot summers and a pronounced summer dry period. The average temperature of the coldest month is above  $-3^{\circ}\text{C}$  and below  $18^{\circ}\text{C}$ . The average temperature of the warmest month exceeds  $22^{\circ}\text{C}$ . Area: the coastal region / Zeta–Bjelopavlići plain.

**2. *Climate / Köppen climate formula Cfsb:***

Temperate warm rainy climate with warm summers but without a pronounced dry period during the year. The average temperature of the warmest month is below  $22^{\circ}\text{C}$ , but at least four months of the year have an average monthly temperature above  $10^{\circ}\text{C}$ . Area: the Nikšić and Cetinje region, south-west Montenegro and an isolated core around Kolašin.

**3. *Climate / Köppen climate formula Cfs''b:***

Temperate warm climate without a pronounced dry period during the year, with dry summers. The average temperature of the warmest month is below  $22^{\circ}\text{C}$ , but at least four months of the year have an average monthly temperature above  $10^{\circ}\text{C}$ . Area: the Berane, Bijelo Polje and Plav region, and the central part of central and western Montenegro.

**4. *Climate / Köppen climate formula Cfb:***

Temperate warm climate without a dry period during the year. The average temperature of the coldest month is above  $-3^{\circ}\text{C}$  and below  $18^{\circ}\text{C}$ . The average temperature of the warmest month is below  $22^{\circ}\text{C}$ , and at least four months of the year have an average temperature above  $10^{\circ}\text{C}$ . Area: higher elevations around the Polimlje region and central Montenegro in a west–east direction.

**5. *Climate / Köppen climate formula Cfws''bx'':***

Temperate warm climate without a pronounced dry period during the year, with lower precipitation in the winter period. Summers are relatively warm. Maximum precipitation

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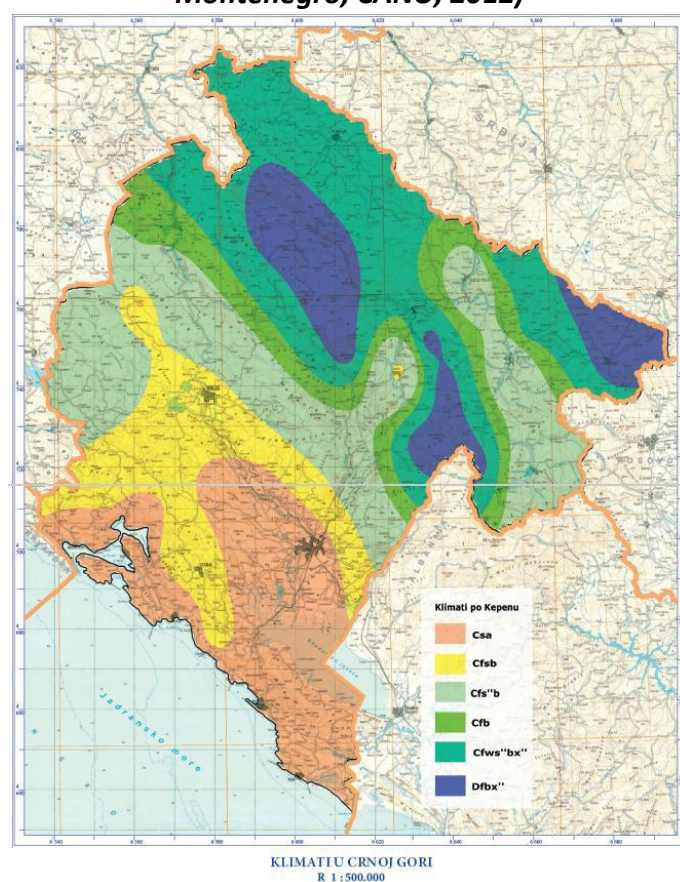
<sup>25</sup> The Köppen climate classification is a generally accepted method used worldwide to provide an overview of the general climatic characteristics of a larger area. It consists of determining climate types.

occurs in early summer and late autumn. Area: the northern Montenegro region and part of the southern slopes of the Durmitor–Sinjajevina and Bjelasica mountain massifs.

**6. *Climate / Köppen climate formula Dfbx''*:**

Snow-forest (boreal) climate without a pronounced dry period during the year. The average temperature of the coldest month is below  $-3^{\circ}\text{C}$ . Precipitation shows a pronounced maximum in late autumn. Area: the mountain regions of Durmitor, Sinjajevina, Komovi, Bjelasica and Prokletije, and the wider Rožaje region, which includes a subtype within this climate type.

**Figure 13: *Climates of Montenegro according to Köppen (Source: Climate Atlas of Montenegro, CANU, 2012)***



***Climatic–meteorological regions***

In general, climatic–meteorological regions (CMRs) that can be distinguished by their relatively homogeneous characteristics, primarily typical climatic patterns, are:

- (CMR1) Coastal region. The coastal belt up to approximately 500 m above sea level;

- (CMR2) Mountain region in the Adriatic hinterland. A wider mountain belt, from Orjen to Rumija, descending steeply on the south-western side and more gently on the north-eastern side, with elevations from about 500–600 m to over 1,500 m;
- (CMR3) Central region. The Zeta–Bjelopavlići plain and its surroundings (Podgorica, Danilovgrad, the Lake Skadar basin), with elevations up to approximately 800–1,000 m;
- (CMR4) Western region. The area of Nikšić, Plužine and Šavnik, towards Orjen and Čevo, with elevations of about 500 m to approximately 1,000–1,100 m;
- (CMR5) Northern region. Valleys, basins and lowland fragments in the northern and eastern parts, with elevations of about 600 to approximately 1,000–1,100 m;
- (CMR6) Mountain region. Central and northern mountainous areas with elevations above 1,000–1,100 m.

In accordance with the official regionalisation of Montenegro into the coastal, central and northern regions, it can be stated that CMR1 belongs to the coastal region; CMR2, CMR3 and CMR4 belong to the central region; while CMR5 and CMR6 belong to the northern region. There is no strict boundary determining the affiliation of a climatological–meteorological region to a particular region under the official regionalisation of Montenegro.

### **Basic climatic characteristics**

**CMR1. Characteristics:** This region has moderately warm and humid summers and mild winters, with a maritime precipitation regime characterised by a maximum in the colder part of the year and a minimum during summer, without large temperature amplitudes and with a low probability of severe frost. Favourable, typically local air circulation occurs, with winds from the sea during the day and from the land at night. In certain meteorological situations, very strong gale-force north-easterly winds (bora) may occur, while in other situations strong gusts of southerly winds are possible. Along the immediate coast, extremely high temperatures are not expected due to local air circulation; however, moving inland, high tropical temperatures of around 37–40°C may occur. In this climatic region, the average annual air temperature ranges from approximately 14–16°C, the average annual precipitation is about 1,400–2,200 l/m<sup>2</sup>, the average maximum snow cover is about 0–20 cm, and the average annual sunshine duration is approximately 2,200–2,500 hours.

**CMR2. Characteristics:** This region has a very specific climatic–meteorological profile. Good ventilation and clean maritime air masses enrich the air environment, precipitation amounts are high, and temperatures exhibit a relatively large amplitude; the annual amplitude may reach around 50°C, while the daily amplitude on a typical summer day may reach around 20°C. In certain meteorological situations, abundant cyclonic rainfall, strong to gale-force southerly winds and intense snowfall may occur, with snow cover reaching up to about 200 cm. In this climatic region, the average annual air temperature ranges from approximately 7–10°C, the average annual precipitation is about 2,200–5,000 l/m<sup>2</sup>, the average maximum snow cover is about 50–160 cm, and the average annual sunshine duration is approximately 2,000–2,300 hours.

**CMR3. Characteristics:** This CMR is characterised by high tropical temperatures during summer, with prolonged dry and hot periods and temperatures exceeding 35°C and even 40°C. The number of tropical days is high. Over the past ten years, the average number of tropical days per season has shown a significant increasing trend. This region is also characterised by frequent strong and very strong northerly winds, which may have a storm-force and destructive character. During the summer period, strong northerly winds have adverse effects on agricultural production and contribute significantly to the occurrence and uncontrolled spread of wildfires. Winters are generally mild, with a dominant absence of snow. In this climatic region, the average annual air temperature ranges from approximately 10–16°C, the average annual precipitation is about 1,600–2,200 l/m<sup>2</sup>, the average maximum snow cover is about 20–70 cm, and the average annual sunshine duration is approximately 2,200–2,400 hours.

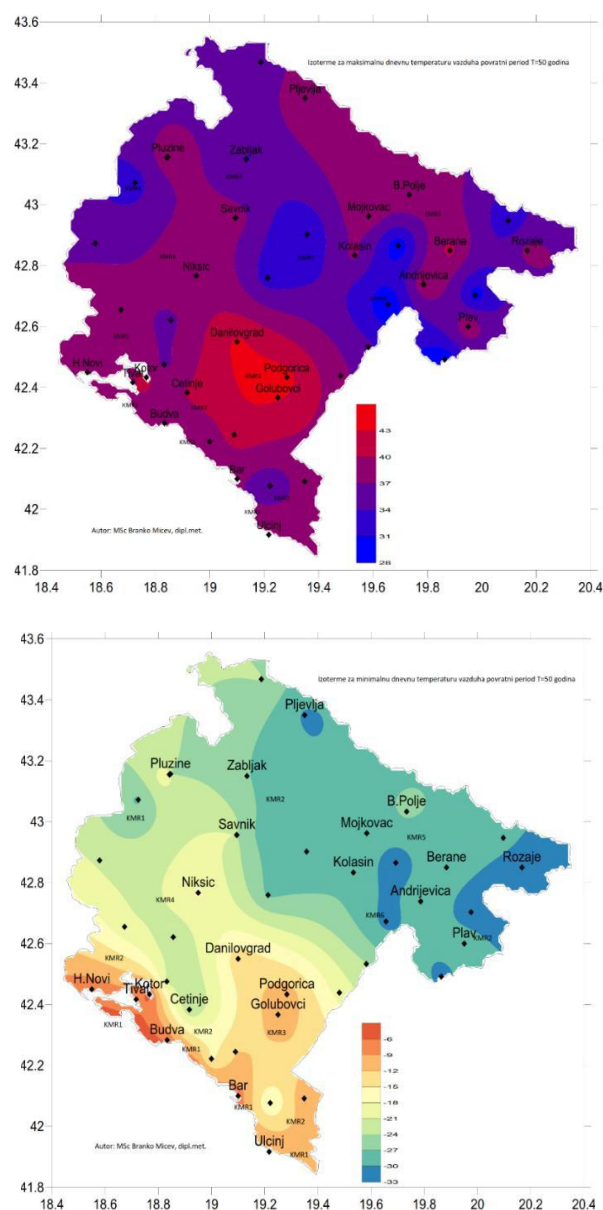
**CMR4. Characteristics:** In this region, climatic conditions are relatively homogeneous and predominantly continental in character, but modified by mountain and, at times, maritime influences. In certain meteorological situations, strong gusts of southerly and northerly winds occur. Snowfall, cold winters and moderately warm summers are characteristic of this climatic region. Late spring frosts and early autumn frosts are likely to occur and may negatively affect the phenological stages of certain crops and fruit species. Severe winter frosts are possible, as well as heavy rainfall, particularly in autumn when daily totals may reach approximately 270–280 l/m<sup>2</sup>. In this climatic region, the average annual air temperature ranges from approximately 6–12°C, the average annual precipitation is about 1,800–2,400 l/m<sup>2</sup>, the average maximum snow cover is about 80–160 cm, and the average annual sunshine duration is approximately 1,800–2,300 hours.

**CMR5. Characteristics:** The northern lower valleys and basins are located in a zone of pronounced climatic–meteorological contrasts with the surrounding areas. This CMR has the lowest precipitation levels in the territory of Montenegro. Extremely large daily and annual temperature amplitudes occur in this region; the annual amplitude averages around 50–60°C, while the daily temperature amplitude may reach approximately 20–25°C. In the basin areas of this climatic–meteorological region during winter, especially at night, “cold air lakes” form, filled with fog and accompanied by very strong temperature inversions. The lowest parts of the basins record the lowest temperatures, which may fall to around –28 to –32°C, while during summer temperatures in the same areas may reach approximately 35–40°C. In this climatic region, the average annual air temperature ranges from approximately 6–9°C, the average annual precipitation is about 700–1,000 l/m<sup>2</sup>, the average maximum snow cover is about 50–80 cm, and the average annual sunshine duration is approximately 1,700–1,900 hours.

**CMR6. Characteristics:** This CMR has a continental mountain climate, modified by Mediterranean influences (warm southerly to south-westerly upper air currents) reaching Durmitor, Sinjajevina, Bjelasica, Komovi and Prokletije. The highest mountains have an average annual temperature below zero. In this CMR, the principal climatic–meteorological characteristics are snow, wind and relatively favourable thermal conditions during the summer period. In summer, daytime temperatures are around 25°C and may reach up to 30°C under extreme meteorological conditions. The average annual air temperature ranges from approximately –2 to 5°C, the

## ***Air Quality Management Strategy for the period 2026–2029***

average annual precipitation is about 1,400–2,200 l/m<sup>2</sup>, the average maximum snow cover is about 110–200 cm, and the average annual sunshine duration is approximately 1,400–1,600 hours.



Isotherms of maximum annual air temperature with a 50-year return period (figure above) and minimum annual air temperature with a 50-year return period (figure below).

*Source: MSc Branko Micev, BSc Meteorology, Study of Extreme Temperatures with a 50-Year Return Period, Hydrometeorological and Seismological Service (ZHMS), 2014.*

## **Geomorphological characteristics**

Relief is an important and dominant element of the landscape and geographical structure of the territory of Montenegro. A highly complex geological–lithological and tectonic base, combined with specific influences of erosional modelling processes, has resulted in relief that is very dynamic and unique in many respects. Abrupt changes in elevation over relatively short distances are a defining characteristic and distinctive feature of Montenegro's relief. Strong and intensive geotectonic activity, particularly dynamic during the period of the Tertiary Alpine orogeny, influenced the development and shaping of the relief of the entire Dinaric mountain system and, consequently, the territory of Montenegro. The present appearance of the relief is the result of major radial and tangential geotectonic movements (over thrusting of older strata over younger ones, various folding and thrusting), which were subsequently shaped by the action of external forces. The altitudinal structure represents remnants of recent relief and indicates the high dynamism and fragmentation of the terrain throughout Montenegro.

Five altitudinal belts can be distinguished within the relief:

- a narrow coastal belt including the Podgorica–Skadar basin and the Bjelopavlići plain (0–60 m above sea level);
- the deep karst plateau: Katun karst, Krivošije, the Grahovo area, Rudine and Banjani (800–900 m above sea level);
- the depression of central Montenegro (900–1,200 m above sea level);
- central high plateaus (1,200–1,800 m above sea level), intersected by deep canyon valleys, above which rise high mountains with numerous peaks exceeding 2,000 m;
- the north-eastern Montenegro region (600–1,500 m above sea level), with numerous mountains, plateaus, river valleys and basins, bordered by mountain ranges exceeding 2,000 m in elevation.

Of the total surface area of Montenegro (13,812 km<sup>2</sup>), only 10% of the land lies below 200 m, 40% lies between 200 and 1,000 m, and 15% lies above 1,500 m. The mean elevation is approximately 1,050 m. The lithological base, geotectonic structure and erosional action of external forces have resulted in the formation of distinct relief units across Montenegro, which differ considerably from one another.

**Figure 14: Main relief units**



Legend: Montenegrin Coast – Plateau of deep karst – Central Montenegro Region – High mountain and plateau region – North-eastern Montenegro Region

### **Regional units**

Taking into account similarities in challenges associated to spatial planning and the protection of natural values, as well as the development opportunities offered by different parts of the territory, and taking into account the level and conditions of socio-economic development, the territory of Montenegro is divided into three, in a certain sense clearly distinct, regional units (regions): the Coastal, Central and Northern regions.

*The Coastal region*, with its characteristic appearance, possesses all the typical features of Mediterranean areas. In addition to outstanding natural conditions for the development of tourism, the maritime economy and certain branches of agriculture, it currently does not possess other significant natural resources. Covering the smallest surface area (1,591 km<sup>2</sup>), this region largely corresponds, in geomorphological terms, to the defined and delineated coastal area, and includes the territories of the municipalities of Herceg Novi, Kotor, Tivat, Budva, Bar and Ulcinj.

*The Central region* represents the most prominent lowland area of Montenegro, surrounded by waterless limestone plateaus. Alongside already known natural resources, its very significant natural potential lies in extensive agricultural land complexes. This region covers an area of 4,917 km<sup>2</sup> and, in geomorphological terms, includes the defined and delineated areas of the depression of central Montenegro, the deep karst plateau and the southern part of the central high plateaus; administratively, it encompasses the territories of the municipalities of Podgorica, Zeta, Tuzi, Danilovgrad, Nikšić and Cetinje.

*The Northern region* is a distinctly high-mountain part of the territory, intersected by river valleys and, in many parts, displaying terrain characteristics typical of Alpine landscapes. Arable agricultural land located along river valleys and slopes, extensive pastures, large complexes of high-quality forests (beech and coniferous), significant reserves of coal, lead and zinc, considerable hydropower potential and, in most areas, very favourable conditions for the development of mountain and health tourism represent the most important natural resources and potentials of this area. The Northern region covers more than half of Montenegro's total territory (7,304 km<sup>2</sup>) and essentially comprises areas defined as the Central High Plateaus and the North-eastern Montenegro Region, with administrative centres in Kolašin, Mojkovac, Žabljak, Šavnik, Plužine, Pljevlja, Bijelo Polje, Petnjica, Berane, Andrijevica, Plav, Gusinje and Rožaje.