

Updated NDC for Montenegro

1. Quantifiable information on the reference point (including, as appropriate, a base year)		
(a)	<i>Reference year(s), base year(s), reference period(s) or other starting point(s)</i>	Base year: 1990
(b)	<i>Quantifiable information on the reference indicators, their values in the reference year(s), base year(s), reference period(s) or other starting point(s), and, as applicable, in the target year</i>	The reference point is total GHG emissions excl. LULUCF in 1990 as reported in the National GHG inventory. In the GHG inventory compiled in 2020, covering the years 1990–2018, base year emissions amounted to 5 383 Gg CO ₂ equivalent.
(c)	<i>For strategies, plans and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or policies and measures as components of nationally determined contributions where paragraph 1(b) above is not applicable, Parties to provide other relevant information</i>	Not applicable
(d)	<i>Target relative to the reference indicator, expressed numerically, for example as a percentage or amount of reduction</i>	At least a 35% reduction in total national GHG emissions (excl. LULUCF) by 2030 compared to 1990 (base year).
(e)	<i>Information on the sources of data used in quantifying the reference point(s)</i>	National GHG inventory prepared in 2020; as this GHG inventory has not been submitted to the UNFCCC yet, a summary table of GHG emissions is included in Annex I.
(f)	<i>Information on the circumstances under which the Party may update the values of the reference indicators</i>	<p>According to the IPCC Guidelines for National Greenhouse Gas Inventories it is good practice to continuously improve the quality of GHG emission inventories. This implies increases in completeness, accuracy (e.g. use of higher-tier methods), consistency, comparability and transparency. For this reason, updates and recalculations due to methodological improvements will be carried out and will affect the reference level. Information on recalculations will be included in biennial reporting to the UNFCCC (BUR and from 2024 onwards BTR).</p> <p>For the next NDC revision cycle, the following improvements are planned:</p> <ul style="list-style-type: none"> • Including the LULUCF sector in the target, which has currently not been possible due to the uncertainty of data in the sector. For Montenegro, the LULUCF carries high potential as a carbon sink. • Including adaptation actions; work on the national adaptation strategy has just started, and adaptation plans are not yet available.

	<ul style="list-style-type: none"> Alignment with energy data included in the National Energy and Climate Plan, which is currently under preparation and will be finalized in 2022.
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2. Timeframes and/or periods for implementation

(a)	<i>Timeframe and/or period for implementation, including start and end date, consistent with any further relevant decision adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA)</i>	The implementation period is from 1 January 2021–31 December 2030. Progress will be tracked through the biennial reporting of GHG emission inventories to the UNFCCC and specified progress indicators. The First Biennial Transparency report is to be developed by the end of 2024.
(b)	<i>Whether it is a single-year or multi-year target, as applicable</i>	Single-year target, namely 2030

3. Scope and coverage

(a)	<i>General description of the target</i>	Economy-wide GHG emission reduction target of 35% by 2030 compared to base year (1990) emissions, excluding LULUCF
(b)	<i>Sectors, gases, categories and pools covered by the nationally determined contribution, including, as applicable, whether it is consistent with the Intergovernmental Panel on Climate Change (IPCC) guidelines</i>	<p><u>IPCC sectors included:</u></p> <ul style="list-style-type: none"> Energy Industrial Processes and Product Use Agriculture Waste <p>Emissions/removals from Land Use, Land Use Change and Forestry (LULUCF) have been estimated in the GHG inventory but are not included in the NDC. This is due to the limited information available on the future development of the LULUCF sector, which is planned to be solved for the next NDC revision.</p> <p><u>Gases included:</u></p> <ul style="list-style-type: none"> Carbon dioxide (CO₂) Methane (CH₄) Nitrous oxide (N₂O) Perfluorocarbons (PFCs) Hydrofluorocarbons (HFCs)

		<ul style="list-style-type: none"> • Sulphur hexafluoride (SF₆): Nitrogen trifluoride (NF₃) does not occur in the category '2.E Production of HFC/PFC and SF₆' and has not been estimated in the category '2.F. Consumption of HFC/PFC and SF₆' due to a lack of data. Therefore NF₃ emissions are currently not included.
(c)	<i>How the Party has taken into consideration paragraph 31(c) and (d) of decision 1/CP.21</i>	<p>All sources, sinks and activities included in the previous NDC and GHG inventory continue to be included. Efforts are being made to further increase the completeness of the GHG inventory.</p> <p>Notation keys have been used in accordance with the IPCC 2006 Guidelines (Volume 1). The notation key 'not estimated' (NE) has been used for the following categories due to a lack of activity data.</p> <ul style="list-style-type: none"> - 1A5 Energy: other - 3F Field burning of agricultural residues - 5B Biological treatment of solid waste - 5C Waste incineration <p>The notation key 'not occurring' (NO) has been used for the following categories, as these activities are not taking place in Montenegro</p> <ul style="list-style-type: none"> - 2A Mineral industry - 2B Chemical industry - 2E Production of halocarbons and SF₆ - 3C Rice cultivation - 3E Prescribed burning of savannahs <p>Further information on the notation keys used is accessible in the GHG inventory summary tables provided in the Annex of the NDC.</p>
(d)	<i>Mitigation co-benefits resulting from Parties' adaptation actions and/or economic diversification plans, including description of specific projects, measures and initiatives of Parties' adaptation actions and/or economic diversification plans</i>	<p>While for years the focus of climate change policy has been climate change mitigation, despite there being many vulnerable areas and sectors, a shift toward adaptation is now present. An improvement was achieved with adoption of the Law on Protection against Climate Change in 2019. It mandates the preparation of the National Adaptation Plan consisting of adaptation measures and an associated financial assessment of adaptation measures. A limited number of strategies contain adaptation actions, though their implementation is moving slowly due to insufficient financial or institutional support.</p>

In the first half of 2021 the Government of Montenegro (GoM), in cooperation with United Nations Development Programme and Green Climate Fund, initiated the project: “Enhancing Montenegro’s capacity to integrate climate change risks into planning”. The project focuses on improving Montenegro’s institutional capacity for long-term adaptation planning, initially focusing on improving the coordination framework and building the capabilities of those involved in the CC and CCA coordination framework. Then, as the coordination framework is strengthened, actions will be taken to improve the information base by determining climate risks and identifying appropriate measures – investments, projects and programmes.

Relying on consultations conducted with national stakeholders and a stocktaking exercise to inform the development of an adaptation process and preparation of the project “Enhancing Montenegro’s capacity to integrate climate change risks into planning”, the GoM concluded that water, agriculture, tourism and health were the initial sectors that the GoM would like to focus on and these have remained priority intervention sectors to this date. The identified sectors were prioritized due to their importance in Montenegro’s development and their high level of vulnerability. An overview of these and additional sectors is presented below:

- Water sector: The adaptation activities are focused more on the water sector, as it is most vulnerable to droughts, heavy rains and a high intensity of precipitation. Due to the observed and projected drought, Montenegro can expect a reduction in gross revenues from hydroelectricity sales, and pressure on water use in the summer as a consequences of the higher population density in the coastal region and tourism.
- Infrastructure & transport: Adaptation activities in infrastructure to resist extreme heat or precipitation will also promote a modal shift towards a lower fossil fuel intensity in the transport sector.
- Agriculture: The mitigation co-benefits of adaptation actions in agriculture are: the enhancement of carbon sinks by an increase in resilient species in areas vulnerable to forest fires; development of micro-reservoirs; the use of renewable energy for cooling and heating; harvest storage; and changes to food processing.

- Soils: Actions carried out to prevent soil degradation (e.g. in the CAMP project) reduce land degradation with green-belt barriers and thereby contribute to increasing carbon sinks.
- Forestry: Activities, such as the strengthening of the forestry infrastructure and the monitoring of logging, are also contributing to an increase in carbon sinks.
- Energy sector: The mitigation co-benefits of adaptation in the energy sector are linked to renewable energies, and accordingly to a decrease in fossil fuel consumption. Also improvements to insulation will reduce the consumption of electricity and wood for heating and decrease cooling needs.
- Tourism in Montenegro has increased substantially in the last decade with notable increases in the number of visitors and investments in the tourist infrastructure. As such, tourism has become one of the main sectors of the economy. A report from the World Tourism and Travel Council (WTTC), which analyses and ranks the impact of tourism on GDP, employment, exports and investment, and covers 184 countries, estimated that tourism will make up 28% of GDP by 2028. As such, and in accordance with the GoM's commitment to sustainable development and environmental protection, the concept of the development of green/responsible tourism on the principles of low-carbon development is considered vital and adaptation measures must be taken to protect this sector.
- Good public health depends on safe drinking water, sufficient food, secure shelter and good social conditions, which may well all be affected by a changing climate – and these are particularly important in the context of economies in transition, such as Montenegro's. It is important to consider that climate change could affect the capacity of health services to deal with emergencies. Adaptation measures in the health sector should focus on the strengthening of existing institutional capacities, information dissemination, resilience of health infrastructure, and monitoring systems to better understand the impacts of climate change on human health in Montenegro.

Some climate mitigation measures, such as the refurbishment of the coal power plant in Pljevlja and the technological improvements in the aluminium production facility will have substantial co-benefits for the reduction of air pollutants. These co-benefits have

	not been quantified yet. But as a first step, the GHG and air emission inventory are being prepared in parallel, which thereby ensures consistency among the inventories.
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4. Planning processes	
<p>(a) <i>Information on the planning processes that the Party undertook to prepare its nationally determined contribution and, if available, on the Party's implementation plans, including, as appropriate:</i></p>	<p>The updated NDC was prepared by a team of technical experts in 2020. The emission levels in 2030 were estimated by identifying policies and measures which have a very high chance of being implemented. As a basis, the policies and measures included in the 3rd National Communication (https://unfccc.int/sites/default/files/resource/TNC%20-%20MNE_0.pdf) have been analysed and the impacts and other information have been updated. Secondly, national sector strategies/programmes or action plans have been reviewed for their climate relevance, to identify measures to be additionally considered in the NDC. Also, stakeholders, such as the Ministry of Ecology, Spatial Planning and Urbanism, Ministry of Capital Investments, Ministry of Agriculture, Forestry and Waters, Ministry of Finance, Environment Protection Agency, Hydrometeorological Institute and the State Statistical Office, have been consulted to clarify questions related to the implementation of measures and to discuss the assumptions made. For the determination of macroeconomic parameters, such as GDP and population, national data has been used. The Ministry of Finance has been consulted for the determination of the GDP growth considered in the projections. It was agreed to use national GDP data until 2023 and then follow a moderate level of GDP growth. A sensitivity analysis to assess the uncertainty of the GDP trend – also due to the COVID pandemic – has not been carried out yet.</p> <p>A business-as-usual scenario and a NDC scenario have been developed, taking into account the previously identified policies and measures. No policies and measures with a realistic chance of being implemented and with a significant impact on GHG emissions have been identified for the agriculture and the LULUCF sector. So for these two sectors, the NDC scenario is the same as the BaU scenario.</p> <p>An internal background report was prepared providing all the underlying methodological information and data sources used to derive the updated NDC. This background report and the draft NDC have been shared for comments with ministries, the Environment</p>

		<p>Protection Agency, the Institute for Public Health, the Institute for Meteorology and Seismology, Water Management Institute, the State Statistical Office and two NGOs. As a final step, the updated NDC was approved by the government on xxxxxx.</p>
	<p><i>(i) Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner</i></p>	<p>The Law on the Protection against the Adverse Impacts of Climate Change regulates domestic international arrangements. The Environmental Protection Agency (EPA) is the single national entity responsible for the preparation of emission inventories. Provision of data from municipalities, other national institutes and polluters is regulated by a data collection plan. The Ministry of Ecology, Spatial Planning and Urbanism is responsible for preparation and submission of National Communication and Biennial Update Reports, whereby the preparation of GHG projections can be outsourced to a legal entity. This law also foresees the preparation of a National Adaptation Plan by the Ministry for Ecology, Spatial Planning and Urbanism. The state administration authorities responsible for energy, industry, agriculture, forestry and transport shall deliver to the ministry a biennial report on measures implemented in line with the strategic documents aimed at preventing adverse impacts of climate change, as well as data on floods, droughts, extreme temperatures, etc.</p> <p>The aforementioned project “Enhancing Montenegro’s capacity to integrate climate change risks into planning” foresees, as one of most urgent activities, the updating of the mission and mandate of the Working Group on Mitigation and Adaptation to Climate Change in order to appropriately include issues related to adaptation in order to enhance action, coordination and accountability. The process should result in improved governing processes and institutional arrangements for oversight and coordination of adaptation-related issues, as well as setting up the multi-stakeholder coordination mechanism that includes the private sector, as well as women and other vulnerable groups. This mechanism would take the responsibility of defining the frequency and timeframes of the NAP planning cycles and of the related monitoring and evaluation systems and update of Standard Operating Procedures for coordination of adaptation plans and activities between sectors and agencies, as well as among working groups at the national and municipal levels (SoP to be developed as part of the project activities).</p> <p>The preparation of the NDC also included an impact assessment on gender equality and vulnerable groups showing that gender issues are already being considered in several national laws and strategies, but further institutional capacity development to address</p>

		the various forms of vulnerability is needed. Also, the participation of women in finding and implementing climate change solutions needs to be further addressed.
	<p><i>(ii) Contextual matters, including, inter alia, as appropriate:</i></p> <p>a. <i>National circumstances, such as geography, climate, economy, sustainable development and poverty eradication</i></p> <p>b. <i>Best practices and experience related to the preparation of the nationally determined contribution</i></p> <p>c. <i>Other contextual aspirations and priorities acknowledged when joining the Paris Agreement</i></p>	<p>a. Information on the national circumstances can be found in Chapter 2 of the 3rd National Communication (https://unfccc.int/sites/default/files/resource/TNC%20-%20MNE_0.pdf).</p> <p>b. The preparation of an internal background report, to provide stakeholders with additional information on how the NDC target was derived, proved very useful. The identification of progress indicators per sector and measure will support the progress tracking as required per Decision 18/CMA.1 – “III. Information necessary to track progress made in implementing and achieving nationally determined contributions under Article 4 of the Paris Agreement”.</p> <p>c. Montenegro is among the group of UN member countries which have officially adopted a National Strategy for Sustainable Development until 2030, which follows the UN Agenda 2030.</p>
	<p><i>(b) Specific information applicable to Parties, including regional economic integration organizations and their member states, that have reached an agreement to act jointly under Article 4, paragraph 2, of the Paris Agreement, including the Parties that agreed to act jointly and the terms of the agreement, in accordance with Article 4, paragraphs 16–18, of the Paris Agreement</i></p>	<p>The updated NDC target for 2030 will be fulfilled by the State of Montenegro and is not part of the regional joint agreement.</p> <p>Montenegro is a candidate country for membership of the EU and is currently implementing Negotiation Chapter 27 on ‘The Environment and Climate Change’. The chapter was opened in December 2018. Further efforts are needed to align the country with the EU2030 climate and energy policy framework.</p> <p>In 2007, Montenegro acceded to the Energy Community Treaty (ECT), which allows the country to be an active member of the Regional and European Energy Market, obliging the state to align its national energy-related legislation with the community acquis. Currently, work on preparing an Integrated National Energy and Climate Plans, as required by the EU Governance Regulation (EU 2018/1999) has started.</p>
	<p><i>(c) How the Party’s preparation of its nationally determined contribution has been informed by the outcomes of the global stocktake, in accordance with Article 4, paragraph 9, of the Paris Agreement</i></p>	<p>Montenegro participated in the Talanoa Dialogue during the COP24 in 2018 dedicated to raising global awareness for the necessary enhancement of NDCs by 2020. According to Article 14.2 of the Paris Agreement, the conference serving as the Meeting of the Parties to the Agreement (CMA) shall undertake its first global stocktake in 2023 and every five years thereafter unless otherwise decided by the CMA. It is expected that the reduction commitments of the updated NDC of Montenegro will be considered in the Global Stocktake Report to be published in 2023.</p>

<p>(d) <i>Each Party with a nationally determined contribution under Article 4 of the Paris Agreement that consists of adaptation action and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, paragraph 7 of the Paris Agreement, is to submit information on:</i></p> <p>(i) <i>How the economic and social consequences of response measures have been considered in developing the nationally determined contribution.</i></p> <p>(ii) <i>Specific projects, measures and activities to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits, which may cover, but are not limited to, key sectors, such as: energy, resources, water resources, coastal resources, human settlements and urban planning, agriculture and forestry; and economic diversification actions, which may cover, but are not limited to, sectors such as manufacturing and industry, energy and mining, transport and communication, construction, tourism, real estate, agriculture and fisheries.</i></p>	<p>As described above under 3(d), Montenegro has recently initiated the project “Enhancing Montenegro’s capacity to integrate climate change risks into planning”, which will contribute to establishing the national adaptation process and the adaptation strategy. Montenegro is also striving to harmonize its GHG and air emission inventories, which will also serve to assess co-benefits in a transparent and consistent way.</p> <p>There is also a CBIT (Capacity-Building Initiative for Transparency) project in the pipeline, which should strengthen the active stakeholder engagement, align MRV requirements with other national priorities (e.g. SDGs) and support technical capacities in view of the enhanced transparency framework (ETF).</p> <p>Information about the relevant outcomes of the mentioned activities will be included in the next NDC revision cycle.</p>
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5. Assumptions and methodological approaches	
<p>(a) <i>Assumptions and methodological approaches used for accounting for anthropogenic greenhouse gas emissions and removals corresponding to the Party’s nationally determined contribution, consistent with decision 1/CP.21, paragraph 31, and accounting guidance adopted by the CMA</i></p>	<p>Montenegro updated its Greenhouse Gas Emission Inventory in 2020, covering the period 1990–2018, applying the 2006 IPCC Guidelines for National Greenhouse Gases. This GHG inventory from 2020 has not been submitted to the UNFCCC yet, so summary tables are annexed to this NDC for transparency reasons. The next reporting to the UNFCCC of the GHG inventory and its National Inventory Report will be made as part of the 3rd Biennial Update Report due in December 2021, which will include additional updates and recalculations, i.e. the addition of 2019, and recalculations of previous time series, where needed.</p> <p>The GHG inventory applies the IPCC 2006 guidelines and uses Tier-1 methods with country-specific activity data and default emission factors. A National Inventory Report</p>

		<p>has been prepared documenting the national system, key categories, the QA/QC plan, methodologies and data sources used, recalculations, planned improvements for all IPCC sources and sinks.</p> <p>Consistent methodologies have been applied throughout the reported period (1990–2018), efforts have been made to apply country-specific data and ensure the application of the IPCC 2006 Guidelines. Any recalculations made take consideration of the whole time series (1990–2018) to ensure time series consistency. The largest recalculations occurred in the LULUCF sector. The application of country-specific and plant-specific emissions factors, especially for stationary combustion, led to higher accuracy. The tool to calculate GHG emissions is also designed to calculate air emissions, contributing to environmental integrity. Further capacity building and human resources are needed, so that Montenegro can continue reporting on GHG and air emissions without external support.</p> <p>The GHG inventory, specifically the total GHG emissions excl. LULUCF, will serve as the main indicator to track progress in achieving the NDC.</p>
(b)	<p><i>Assumptions and methodological approaches used for accounting for the implementation of policies and measures or strategies in the nationally determined contribution</i></p>	<p>The climate mitigation policies and measures already implemented or with a realistic chance of being implemented in the coming years have been identified, based on the measures included in the 3rd National Communication, a review of national strategies and information received from stakeholders. A list of the climate mitigation measures relevant to achieving the revised NDC is provided in Annex II.</p> <p><u>Energy and IPPU</u>: A baseline scenario was developed, which does not take into account any measures but is linked to the projected GDP development. The annual relative GDP growth used in the projections for the energy and IPPU sector is provided in Annex III. Then the impact of policies has been estimated and deducted from the BaU scenario to derive the NDC scenario emission path. To estimate the impact of energy efficiency measures, the LEAP has been used.</p> <p><u>Agriculture</u>: As no measures with relevant impact on GHGs have been identified for the agricultural sector, only a BaU scenario has been developed. The projected trend of livestock numbers and fertilizer use considered in the projections is derived from FAO data and is available in Annex III. The same methodology and emission factors as for the GHG inventory has been applied.</p>

		<p><u>Waste:</u> The BaU scenario considers the projected waste generation rate according to population growth, while all other parameters (waste generation rate, waste composition, % deposited on SWDS and landfill gas recovery) are kept constant. The NDC scenario considers a reduction of biowaste landfilled according to the national targets set and a change in the waste composition. In the domestic wastewater sector, increased connection rates to the sewage system have been considered in line with the planned full implementation of the European Urban wastewater treatment Directive. The parameters used are presented in Annex III.</p> <p><u>LULUCF:</u> No measures with a realistic chance of being implemented in the coming years have been identified. Therefore, only a BaU scenario has been developed, following the past trend in land use and land use changes, as well as a continuation of the levels of harvesting and forest fires. The LULUCF sector is not part of the target defined in this NDC.</p>
(c)	<i>If applicable, information on how the Party will take into account existing methods and guidance under the Convention to account for anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement, as appropriate</i>	Not applicable, see below (d)
(d)	<i>IPCC methodologies and metrics used for estimating anthropogenic greenhouse gas emissions and removals</i>	<p>The GHG emission inventory used to set the updated NDC is in compliance with the IPCC 2006 Guidelines.</p> <p>The GWP values (for a 100-year time horizon) used are consistent with the ones presented in the IPCC 4th Assessment Report.</p>
(e)	<p><i>Sector-, category- or activity-specific assumptions, methodologies and approaches consistent with IPCC guidance, as appropriate, including, as applicable:</i></p> <p><i>(i) The approach to addressing emissions and subsequent removals from natural disturbances on managed lands</i></p> <p><i>(ii) The approach used to account for emissions and removals from harvested wood products</i></p>	<p>Emissions and removals are estimated using 2006 IPCC Guidelines without any special approach to exclude emissions or removals due to natural disturbances.</p> <p>Harvested wood products are estimated based on the production approach (or Approach B) of the 2006 IPCC Guidelines. Activity data has been derived from the FAOStat database on forestry production and trade statistics.</p> <p>Variations on the carbon stock in forest is estimated based on the information of the Montenegro's National Forest Inventory (NFI). The increase in living biomass has been estimated using increment data from the NFI. While there has only been one inventory cycle so far, increment estimates were derived based on increment borer measurements</p>

	<i>(iii) The approach used to address the effects of the age-class structure in forests</i>	of sample trees. Age classes are taken into account implicitly in the estimation of the growth rates of the different species.
<i>(f)</i>	<p><i>Other assumptions and methodological approaches used for understanding the nationally determined contribution and, if applicable, estimating corresponding emissions and removals, including:</i></p> <p><i>(i) How the reference indicators, baseline(s) and/or reference level(s), including, where applicable, sector-, category- or activity-specific reference levels, are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources and models used</i></p> <p><i>(ii) For Parties with nationally determined contributions that contain non-greenhouse-gas components, information on assumptions and methodological approaches used in relation to those components, as applicable</i></p> <p><i>(iii) For climate forcers included in nationally determined contributions not covered by IPCC guidelines, information on how the climate forcers are estimated</i></p> <p><i>(iv) Further technical information, as necessary</i></p>	<p>(i) See 5(b)</p> <p>(ii) Not applicable</p> <p>(iii) Not applicable</p> <p>(iv) Not applicable</p>
<i>(g)</i>	<i>The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable</i>	The accounting rules for international carbon markets under Article 6 of the Paris Agreement have not been set yet. Montenegro has not made any national decision on this issue yet but is striving to participate in the EU emission trading scheme from 2025 onwards.

6. How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances		
<i>(a)</i>	<i>How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances</i>	Montenegro is a non-Annex-I country, highly vulnerable to the effects of climate change. National emissions of the greenhouse gases represent only 0.01% of global emissions (source: CAIT data, excl. LULUCF) and the net per capita GHG emissions in Montenegro in 2018 amounted to 5.4 Mg CO ₂ eq per capita; in the EU27 this is 8.4 Mg CO ₂ eq per capita

		<p>(source: EEA GHG data viewer). Since 1990, the total national GHG emissions decreased by 30%, with the emission peaking in the early 1990s.</p> <p>Montenegro will take into account the ultimate objective of the UNFCCC in its future development and will be committed to decoupling greenhouse gas emissions from its economic growth and embark on a low-emission development pathway.</p> <p>The NDC serves as stepping stone and provides a development framework and guidance for more ambitious adaptation goals to be developed under project “Enhancing Montenegro’s capacity to integrate climate change risks into planning”. The goals defined by the NDC will have a clear effect on project activities focusing on addressing the gaps of:</p> <ul style="list-style-type: none"> • An underperforming coordination framework • A lack of institutional capacity • Insufficient information and lack of finance to fund adaptation investments • A private sector that has a low capacity to understand and respond to climate vulnerabilities and risks <p>With the GCF support, Montenegro will strengthen its institutional coordination framework, expanding the technical capacities of those responsible and involved in adaptation planning, enhance the evidence base required for effective decision making, and define a resource mobilization strategy.</p> <p>The NDC submitted by Montenegro is considered fair, taking into account the relatively low GDP per capita volumes compared to EU member countries. The ambition has been increased compared to the INDC, not only in relative terms but also absolute emission reductions. Further significant emission reductions will depend on policies targeting the two most important point sources (the thermoelectric power plant and aluminium production unit), which will have substantial social and economic consequences. So, for the moment the proposed NDC target of –35% is ambitious as it aims to secure significant reduction of its greenhouse gas emissions while satisfying the country’s need for economic development.</p>
(b)	<i>Fairness considerations, including reflecting on equity</i>	<p>Montenegro considers its update of the INDC from –30% compared to 1990, to –35% compared to 1990 to be achieved in 2030 as ambitious and fair, as the country will have to ensure the implementation of mitigation measures, which require substantial investments, as well as mechanisms and awareness raising to ensure a just transition. Also, with regard to the economic downturn triggered by the COVID-19 pandemic,</p>

		Montenegro sees itself as currently not being in a position to come forward with a more ambitious target.
(c)	<i>How the Party has addressed Article 4, paragraph 3, of the Paris Agreement</i>	The updated NDC target represents a progression beyond the current NDC and reflects the highest possible ambition, considering the national circumstances.
(d)	<i>How the Party has addressed Article 4, paragraph 4, of the Paris Agreement</i>	Montenegro is a developing country Party and has hereby enhanced its NDC, which represents an economy-wide emission reduction.
(e)	<i>How the Party has addressed Article 4, paragraph 6, of the Paris Agreement</i>	Not applicable.

7. How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2:		
(a)	<i>How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2</i>	Montenegro respects and supports the ultimate objective of the Convention and contributes with its highest possible ambition, reflected in this updated NDC.
(b)	<i>How the nationally determined contribution contributes towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement.</i>	See 7(a)

Annex I: Summary of total national GHG emissions excluding LULUCF (1990, 2005, 2010, 2015, 2018)

Note: Nitrogen trifluoride (NF₃) is not included, as it does not occur in category '2.E Production of HFC/PFC and SF₆' and has not been estimated in category '2.F. Consumption of HFC/PFC and SF₆' due to a lack of data.

1990	Emissions in Gg CO ₂ equivalent							
Greenhouse gas source and sink categories	GHG	CO ₂ emissions & removals	CO ₂ removals	CH ₄	N ₂ O	HFC	PFC	SF ₆
1. Energy	2 816.80	2 626.12		159.73	30.95	NA	NA	NA
A. Fuel combustion (sector-level approach)	2 769.88	2 626.12		112.81	30.95	NA	NA	NA
1. Energy industries	1 761.87	1 754.11		0.66	7.10	NA	NA	NA
2. Manufacturing industries and construction	394.20	392.53		0.55	1.13	NA	NA	NA
3. Transport	355.53	347.86		2.71	4.96	NA	NA	NA
4. Other sectors	258.27	131.62		108.89	17.76	NA	NA	NA
5. Other (please specify)	NE	NE		NE	NE	NA	NA	NA
B. Fugitive emissions from fuels	46.92	NE		46.92	NE	NA	NA	NA
1. Solid fuels	46.92	NA		46.92	NA	NA	NA	NA
2. Oil and natural gas	NE	NE		NE	NE	NA	NA	NA
2. Industrial processes	1 704.68	213.20		0.05	NO	NO	1 490.64	0.78
A. Mineral products	24.75	24.75		NO	NO	NA	NA	NA
B. Chemical industry	NO	NO		NO	NO	NA	NA	NA
C. Metal production	1 675.97	185.28		0.05	NO	NA	1 490.64	NA
D. Other production	3.07	3.07		NA	NA	NA	NA	NA
E. Production of halocarbons and SF ₆	NO	NO		NO	NO	NA	NA	NA
F. Consumption of halocarbons and SF ₆	NO	NE		NO	NE	NO	NA	NE
G Other product manufacture and use	0.78	NE		NE	NE	NA	NA	0.78
H. Other	0.11	0.11		NA	NA	NA	NA	NA
3. Agriculture	643.51	0.49		584.14	58.87	NA	NA	NA
A. Enteric fermentation	483.90	NA		483.90	NA	NA	NA	NA
B. Manure management	146.24	NA		100.24	46.00	NA	NA	NA
C. Rice cultivation	NO	NA		NO	NA	NA	NA	NA
D. Agricultural soils	12.87	NA		NA	12.87	NA	NA	NA
E. Prescribed burning of savannahs	NE	NA		NO	NO	NA	NA	NA
F. Field burning of agricultural residues	NE	NA		NE	NE	NA	NA	NA
G. Other (urea application)	0.49	0.49		0.00	0.00	NA	NA	NA
4. Land-use change and forestry	-1 589.33	-1 593.46		1.68	2.45	NA	NA	NA
A. Total forest land	-1 574.78	-1 577.56		1.68	1.10	NA	NA	NA
B. Cropland	0.04	0.00		NA	0.04	NA	NA	NA
C. Grassland	NE	0.00		NA	NA	NA	NA	NA
D. Wetlands	NE	0.00		NA	NA	NA	NA	NA
E. Settlements	20.84	19.54		NA	1.30	NA	NA	NA
F. Other land	7.87	7.87		NA	0.00	NA	NA	NA
G. Harvested wood products	-43.31	-43.31		NA	NA	NA	NA	NA
5. Waste	217.97	NE		210.50	7.47	NA	NA	NA
A. Solid waste disposal on land	150.49	NA		150.49	NA	NA	NA	NA
B. Biological treatment of solid waste	NE	NA		NE	NE	NA	NA	NA
C. Waste incineration	NE	NE		NE	NE	NA	NA	NA

D. Wastewater handling	67.47	NA		60.01	7.47	NA	NA	NA
6. Other (please specify)	NE	NO		NO	NO	NA	NA	NA
Total national emissions and removals	5 382.95	2 839.82		954.43	97.29	NO	1 490.64	0.78
Memo items								
International bunkers								
Aviation	56.19	30.67		NO	25.51			
Marine	NE	NO		NO	NO			
CO₂ emissions from biomass	1 599.08	1 599.08		NA	NA			

2005	Emissions in Gg CO₂ equivalent							
Greenhouse gas source and sink categories	GHG	CO₂ emissions & removals	CO₂ removals	CH₄	N₂O	HFC	PFC	SF₆
1. Energy	2 281.28	2 178.06		83.06	20.16	NA	NA	NA
A. Fuel combustion (sector-level approach)	2 250.14	2 178.06		51.93	20.16	NA	NA	NA
1. Energy industries	1 127.11	1 121.88		0.28	4.95	NA	NA	NA
2. Manufacturing industries and construction	555.92	553.61		0.75	1.56	NA	NA	NA
3. Transport	407.64	399.53		2.42	5.69	NA	NA	NA
4. Other sectors	159.48	103.04		48.47	7.96	NA	NA	NA
5. Other (please specify)	NE	NE		NE	NE	NA	NA	NA
B. Fugitive emissions from fuels	31.14	NE		31.14	NE	NA	NA	NA
1. Solid fuels	31.14	NA		31.14	NA	NA	NA	NA
2. Oil and natural gas	NE	NE		NE	NE	NA	NA	NA
2. Industrial processes	1 167.11	205.97		0.03	NO	90.37	869.31	1.43
A. Mineral products	4.51	4.51		NO	NO	NA	NA	NA
B. Chemical industry	NO	NO		NO	NO	NA	NA	NA
C. Metal production	1 070.13	200.79		0.03	NO	NA	869.31	NA
D. Other production	0.58	0.58		NA	NA	NA	NA	NA
E. Production of halocarbons and SF ₆	NO	NO		NO	NO	NA	NA	NA
F. Consumption of halocarbons and SF ₆	90.37	NE		NE	NE	90.37	NA	NE
G Other product manufacture and use	1.43	NE		NE	NE	NA	NA	1.43
H. Other	0.10	0.10		NA	NA	NA	NA	NA
3. Agriculture	391.72	0.43		354.89	36.40	NA	NA	NA
A. Enteric fermentation	294.33	NA		294.33	NA	NA	NA	NA
B. Manure management	89.84	NA		60.56	29.29	NA	NA	NA
C. Rice cultivation	NO	NA		NO	NA	NA	NA	NA
D. Agricultural soils	7.12	NA		NA	7.12	NA	NA	NA
E. Prescribed burning of savannahs	NE	NA		NO	NO	NA	NA	NA
F. Field burning of agricultural residues	NE	NA		NE	NE	NA	NA	NA
G. Other (urea application)	0.43	0.43		0.00	0.00	NA	NA	NA
4. Land-use change and forestry	-2 460.60	-2 462.34		0.24	1.50	NA	NA	NA
A. Total forest land	-2 483.77	-2 484.16		0.24	0.16	NA	NA	NA
B. Cropland	0.04	0.00		NA	0.04	NA	NA	NA
C. Grassland	NE	0.00		NA	NA	NA	NA	NA
D. Wetlands	NE	0.00		NA	NA	NA	NA	NA
E. Settlements	20.84	19.54		NA	1.30	NA	NA	NA

F. Other land	7.87	7.87		NA	0.00	NA	NA	NA
G. Harvested wood products	-5.58	-5.58		NA	NA	NA	NA	NA
5. Waste	299.55	NE		288.24	11.31	NA	NA	NA
A. Solid waste disposal on land	228.66	NA		228.66	NA	NA	NA	NA
B. Biological treatment of solid waste	NE	NA		NE	NE	NA	NA	NA
C. Waste incineration	NE	NE		NE	NE	NA	NA	NA
D. Wastewater handling	70.89	NA		59.58	11.31	NA	NA	NA
6. Other (please specify)	NE	NO		NO	NO	NA	NA	NA
Total national emissions and removals	4 139.67	2 384.46		726.22	67.88	90.37	869.31	1.43
Memo items								
International bunkers								
Aviation	29.51	29.17		NO	0.34			
Marine	NE	NO		NO	NO			
CO₂ emissions from biomass	666.92	666.92		NA	NA			

2010 Greenhouse gas source and sink categories	Emissions in Gg CO ₂ equivalent							
	GHG	CO ₂ emissions & removals	CO ₂ removals	CH ₄	N ₂ O	HFC	PFC	SF ₆
1. Energy	2 699.24	2 572.85		100.75	25.65	NA	NA	NA
A. Fuel combustion (sector-level approach)	2 657.04	2 572.85		58.55	25.65	NA	NA	NA
1. Energy industries	1 615.16	1 607.66		0.40	7.09	NA	NA	NA
2. Manufacturing industries and construction	186.94	185.97		0.34	0.63	NA	NA	NA
3. Transport	635.09	623.06		3.10	8.94	NA	NA	NA
4. Other sectors	219.85	156.15		54.71	8.99	NA	NA	NA
5. Other (please specify)	NE	NE		NE	NE	NA	NA	NA
B. Fugitive emissions from fuels	42.20	NE		42.20	NE	NA	NA	NA
1. Solid fuels	42.20	NA		42.20	NA	NA	NA	NA
2. Oil and natural gas	NE	NE		NE	NE	NA	NA	NA
2. Industrial processes	777.19	137.13		0.01	NO	141.32	497.18	1.55
A. Mineral products	0.63	0.63		NO	NO	NA	NA	NA
B. Chemical industry	NO	NO		NO	NO	NA	NA	NA
C. Metal production	633.15	135.96		0.01	NO	NA	497.18	NA
D. Other production	0.45	0.45		NA	NA	NA	NA	NA
E. Production of halocarbons and SF ₆	NO	NO		NO	NO	NA	NA	NA
F. Consumption of halocarbons and SF ₆	141.32	NE		NE	NE	141.32	NA	NE
G Other product manufacture and use	1.55	NE		NE	NE	NA	NA	1.55
H. Other	0.09	0.09		NA	NA	NA	NA	NA
3. Agriculture	321.07	0.41		286.27	34.40	NA	NA	NA
A. Enteric fermentation	237.11	NA		237.11	NA	NA	NA	NA
B. Manure management	72.93	NA		49.15	23.77	NA	NA	NA
C. Rice cultivation	NO	NA		NO	NA	NA	NA	NA
D. Agricultural soils	10.62	NA		NA	10.62	NA	NA	NA
E. Prescribed burning of savannahs	NE	NA		NO	NO	NA	NA	NA
F. Field burning of agricultural residues	NE	NA		NE	NE	NA	NA	NA
G. Other (urea application)	0.41	0.41		0.00	0.00	NA	NA	NA

4. Land-use change and forestry	-2 523.94	-2 528.26		1.62	2.70	NA	NA	NA
A. Total forest land	-2 588.01	-2 590.69		1.62	1.07	NA	NA	NA
B. Cropland	0.76	0.69		NA	0.07	NA	NA	NA
C. Grassland	0.31	0.31		NA	NA	NA	NA	NA
D. Wetlands	NE	0.00		NA	NA	NA	NA	NA
E. Settlements	37.10	35.53		NA	1.57	NA	NA	NA
F. Other land	1.92	1.92		NA	0.00	NA	NA	NA
G. Harvested wood products	23.98	23.98		NA	NA	NA	NA	NA
5. Waste	312.88	NE		299.94	12.94	NA	NA	NA
A. Solid waste disposal on land	240.91	NA		240.91	NA	NA	NA	NA
B. Biological treatment of solid waste	NE	NA		NE	NE	NA	NA	NA
C. Waste incineration	NE	NE		NE	NE	NA	NA	NA
D. Wastewater handling	71.97	NA		59.03	12.94	NA	NA	NA
6. Other (please specify)	NE	NO		NO	NO	NA	NA	NA
Total national emissions and removals	4 110.39	2 710.39		686.96	72.99	141.32	497.18	1.55
Memo items								
International bunkers								
Aviation	32.07	31.42		NO	0.65			
Marine	NE	NO		NO	NO			
CO₂ emissions from biomass	746.22	746.22		NA	NA			

2015 Greenhouse gas source and sink categories	Emissions in Gg CO ₂ equivalent							
	GHG	CO ₂ emissions & removals	CO ₂ removals	CH ₄	N ₂ O	HFC	PFC	SF ₆
1. Energy	2 551.09	2 427.41		98.82	24.86	NA	NA	NA
A. Fuel combustion (sector-level approach)	2 506.73	2 427.41		54.46	24.86	NA	NA	NA
1. Energy industries	1 654.08	1 646.38		0.41	7.29	NA	NA	NA
2. Manufacturing industries and construction	159.39	158.13		0.45	0.81	NA	NA	NA
3. Transport	591.21	580.32		2.42	8.47	NA	NA	NA
4. Other sectors	102.05	42.57		51.19	8.29	NA	NA	NA
5. Other (please specify)	NE	NE		NE	NE	NA	NA	NA
B. Fugitive emissions from fuels	44.36	NE		44.36	NE	NA	NA	NA
1. Solid fuels	44.36	NA		44.36	NA	NA	NA	NA
2. Oil and natural gas	NE	NE		NE	NE	NA	NA	NA
2. Industrial processes	370.61	91.17		0.01	NO	205.27	71.93	2.23
A. Mineral products	NE	NO		NO	NO	NA	NA	NA
B. Chemical industry	NO	NO		NO	NO	NA	NA	NA
C. Metal production	142.87	70.93		0.01	NO	NA	71.93	NA
D. Other production	20.16	20.16		NA	NA	NA	NA	NA
E. Production of halocarbons and SF ₆	NO	NO		NO	NO	NA	NA	NA
F. Consumption of halocarbons and SF ₆	205.27	NE		NE	NE	205.27	NA	NE
G Other product manufacture and use	2.23	NE		NE	NE	NA	NA	2.23
H. Other	0.08	0.08		NA	NA	NA	NA	NA
3. Agriculture	309.34	0.38		278.40	30.56	NA	NA	NA
A. Enteric fermentation	229.78	NA		229.78	NA	NA	NA	NA

B. Manure management	70.99	NA		48.62	22.36	NA	NA	NA
C. Rice cultivation	NO	NA		NO	NA	NA	NA	NA
D. Agricultural soils	8.20	NA		NA	8.20	NA	NA	NA
E. Prescribed burning of savannahs	NE	NA		NO	NO	NA	NA	NA
F. Field burning of agricultural residues	NE	NA		NE	NE	NA	NA	NA
G. Other (urea application)	0.38	0.38		0.00	0.00	NA	NA	NA
4. Land-use change and forestry	-2 373.79	-2 387.97		7.27	6.91	NA	NA	NA
A. Total forest land	-2 323.82	-2 335.88		7.27	4.79	NA	NA	NA
B. Cropland	0.57	0.48		NA	0.09	NA	NA	NA
C. Grassland	-0.62	-0.62		NA	NA	NA	NA	NA
D. Wetlands	NE	0.00		NA	NA	NA	NA	NA
E. Settlements	55.37	53.35		NA	2.03	NA	NA	NA
F. Other land	NE	0.00		NA	0.00	NA	NA	NA
G. Harvested wood products	-105.29	-105.29		NA	NA	NA	NA	NA
5. Waste	304.79	NE		291.68	13.11	NA	NA	NA
A. Solid waste disposal on land	234.43	NA		234.43	NA	NA	NA	NA
B. Biological treatment of solid waste	NE	NA		NE	NE	NA	NA	NA
C. Waste incineration	NE	NE		NE	NE	NA	NA	NA
D. Wastewater handling	70.36	NA		57.25	13.11	NA	NA	NA
6. Other (please specify)	NE	NO		NO	NO	NA	NA	NA
Total national emissions and removals	3 535.83	2 518.96		668.92	68.53	205.27	71.93	2.23
Memo items								
International bunkers								
Aviation	29.14	28.49		NO	0.65			
Marine	NE	NO		NO	NO			
CO₂ emissions from biomass	720.67	720.67		NA	NA			

2018 Greenhouse gas source and sink categories	Emissions in Gg CO ₂ equivalent							
	GHG	CO ₂ emissions & removals	CO ₂ removals	CH ₄	N ₂ O	HFC	PFC	SF ₆
1. Energy	2 796.93	2 667.64		101.97	27.33	NA	NA	NA
A. Fuel combustion (sector-level approach)	2 743.57	2 667.29		48.95	27.33	NA	NA	NA
1. Energy industries	1 642.42	1 634.76		0.41	7.26	NA	NA	NA
2. Manufacturing industries and construction	182.18	180.96		0.43	0.79	NA	NA	NA
3. Transport	822.57	807.80		2.80	11.97	NA	NA	NA
4. Other sectors	96.40	43.77		45.32	7.30	NA	NA	NA
5. Other (please specify)	NE	NE		NE	NE	NA	NA	NA
B. Fugitive emissions from fuels	53.37	0.35		53.02	0.00	NA	NA	NA
1. Solid fuels	53.02	NA		53.02	NA	NA	NA	NA
2. Oil and natural gas	0.35	0.35		NE	0.00	NA	NA	NA
2. Industrial processes	380.19	95.72		0.01	NO	235.91	46.02	2.52
A. Mineral products	NE	NO		NO	NO	NA	NA	NA
B. Chemical industry	NO	NO		NO	NO	NA	NA	NA
C. Metal production	113.91	67.88		0.01	NO	NA	46.02	NA
D. Other production	27.77	27.77		NA	NA	NA	NA	NA

E. Production of halocarbons and SF ₆	NO	NO		NO	NO	NA	NA	NA
F. Consumption of halocarbons and SF ₆	235.91	NE		NE	NE	235.91	NA	NE
G Other product manufacture and use	2.52	NE		NE	NE	NA	NA	2.52
H. Other	0.08	0.08		NA	NA	NA	NA	NA
3. Agriculture	286.41	0.37		256.68	29.36	NA	NA	NA
A. Enteric fermentation	211.49	NA		211.49	NA	NA	NA	NA
B. Manure management	66.35	NA		45.19	21.16	NA	NA	NA
C. Rice cultivation	NO	NA		NO	NA	NA	NA	NA
D. Agricultural soils	8.20	NA		NA	8.20	NA	NA	NA
E. Prescribed burning of savannahs	NE	NA		NO	NO	NA	NA	NA
F. Field burning of agricultural residues	NE	NA		NE	NE	NA	NA	NA
G. Other (urea application)	0.37	0.37		0.00	0.00	NA	NA	NA
4. Land-use change and forestry	-2 455.90	-2 471.53		7.95	7.69	NA	NA	NA
A. Total forest land	-2 371.91	-2 385.10		7.95	5.24	NA	NA	NA
B. Cropland	0.64	0.55		NA	0.09	NA	NA	NA
C. Grassland	-0.90	-0.90		NA	NA	NA	NA	NA
D. Wetlands	NE	0.00		NA	NA	NA	NA	NA
E. Settlements	58.71	56.35		NA	2.36	NA	NA	NA
F. Other land	NE	0.00		NA	0.00	NA	NA	NA
G. Harvested wood products	-142.43	-142.43		NA	NA	NA	NA	NA
5. Waste	303.73	NE		290.62	13.11	NA	NA	NA
A. Solid waste disposal on land	235.03	NA		235.03	NA	NA	NA	NA
B. Biological treatment of solid waste	NE	NA		NE	NE	NA	NA	NA
C. Waste incineration	NE	NE		NE	NE	NA	NA	NA
D. Wastewater handling	68.70	NA		55.59	13.11	NA	NA	NA
6. Other (please specify)	NE	NO		NO	NO	NA	NA	NA
Total national emissions and removals	3 767.26	2 763.74		649.28	69.79	235.91	46.02	2.52
Memo items								
International bunkers								
Aviation	34.42	33.54		NO	0.88			
Marine	NE	NO		NO	NO			
CO₂ emissions from biomass	633.30	633.30		NA	NA			

*Notation keys: NA – not applicable; NE – not estimated; NO – not occurring.

Annex II: List of climate mitigation measures considered in the revised NDC

	Name of measure	Description	2030 emission reduction in Gg CO ₂ eq	Cumulated savings (2019–2030) in Gg CO ₂ eq
1E	Ecological refurbishment of Pljevlja Thermolectric Power Plant (TPP)	<p>The TPP ecological refurbishment includes the construction of de-sulphurization (FGD) and de-nitrification (SCR) installations, upgrading the electro-filtering plant, construction of a wastewater treatment facility, and reconstruction of the internal system for transporting by-products, as well as building a heating station, as a part of the district heating system.</p> <p>The emission reductions anticipated by 2030 are mainly due to the temporary closure of the plant in 2021 and 2022 due to refurbishment.</p>	0	1178
2E	Carbon pricing for TPP	<p>The Decree on activities which emit greenhouse gases, and for which a permit for GHG emission is issued, has been in force since February 2020. With this decree the emissions of industrial and energy plants are limited by the introduction of a national emissions trading system. In accordance with a forecast of market electricity prices, there will be a need for minor reductions of annual generation starting from 2023 due to the lower market price. The TPP operator risks not being competitive on the market due to increased generation costs due to high investment costs plus reagents, chemicals and water for FGD and SCR systems operation costs). Moreover, a significant decrease in generation will take place starting from 2023, due to the new EU Cross-Border Adjustment Mechanism (CBAM).</p>	461	2282
3E	New renewable power plants	<p>The following renewable power plants are planned:</p> <ul style="list-style-type: none"> a) New G8 turbine-generator unit in HPP Perućica (additional 58.5 MW, 50 GWh) b) HPP Piva reconstruction (no additional capacity) c) WPP Gvozd (54.6 MW, 150 GWh) d) WPP Brajići (100 MW, 277 GWh) e) SPP Briska Gora (250 MW, 450 GWh) f) HPP Komarnica (172 MW, 213 GWh) g) SPP Velje Brdo (50 MW, 90 GWh) h) SPP prosumers (10 MW, 18 GWh) 	65	557
4E	District heating in Pljevlja	<p>The district heating development in the town of Pljevlja will follow after Pljevlja TPP eco-refurbishment, while during the refurbishment all the heating system connection-related preparatory works are to be completed. The main objective of this project is to supply the town of Pljevlja with heat energy via a modern centralized heat supply system from a central heat source that will close down households' coal furnaces. It is assumed that this project will</p>	13	61

		eliminate lignite as a fuel used for heating purposes in Pljevlja at the latest by 2030. The phasing out of lignite used in Pljevlja municipality's residential sector will result in a GHG emission reduction that follows the dynamics of the lignite decrease throughout the observed period.		
5E	Development and implementation of an energy efficiency regulatory framework in buildings	The implementation of legislation on the minimum requirements for the energy efficiency of buildings, certification of building energy performance and regular energy audits for heating and air-conditioning systems are already generating results in terms of reduced building energy consumption. This measure has a major impact on the refurbishment of existing buildings and new buildings, as all fully refurbished buildings and new buildings must meet the minimum requirements.	22	151
6E	Increased energy efficiency in public buildings	The objective of this measure is to improve energy efficiency and comfort conditions in selected public-sector buildings. The implementation of the measure is expected to initiate the development of the services market in the construction sector and cause a positive impact on the overall socio-economic environment. It is also expected to achieve remarkable results in the area of environmental conservation.	3	18
7E	Financial incentives for citizens/private households (for energy efficiency investments)	The aim of this measure is to make financial support mechanisms available to individuals for investing in energy efficiency and RES. It includes the introduction of dedicated state and local government subsidizing programmes for energy savings in private households and RES use. Measures that contribute to reducing energy needs, as well as use of solar energy and modern forms of biomass (pellets, briquettes, wood chips) should be primarily encouraged.	1	8
8E	Energy labelling and eco-design requirements for energy-related products	The energy labelling and eco-design requirements reflect the approximation of the EU's directives/regulations for energy-related products. The energy labelling legal provisions require that economic operators provide customers with information about the energy consumption of the devices. The eco-design requirements set minimum energy efficiency standards (and in some cases pollution standards) for a number of products, meaning that if they do not meet these standards they cannot be put on the market. These two areas of regulatory intervention choices depend on the energy efficiency of the devices available on the market.	2	11
9E	Establishment and implementation of EE criteria in public tendering	The main objective of this measure is to establish systematic mechanisms for introducing energy efficiency criteria into the public procurement process, in order to achieve significant energy savings as well as financial and other benefits. The implementation of this measure is one of the	2	11

		preconditions for meeting the requirements of the EU's EED approximation.		
10E	Implementation of energy efficiency measures in public municipal companies	In accordance with the Law on Efficient Energy Use, local governments are obliged to prepare a Programme for Improving Local Government Energy Efficiency for a period of three years. The programme shall contain a proposal of energy efficiency measures for the local governments.	3	27
11E	Development of transmission and distribution power network (decrease of losses)	Network operators are investing in the grid in order to accommodate new consumers and power plants. This will result in a decrease in electricity losses. A decrease in losses will directly affect the electricity deficit or the amount of electricity available for export.	0	41
12E	Refurbishment of small hydroelectric power plants (increased EE)	The small hydroelectric power plants included in this measure have been operating for many years without serious investment in them. With a total installed capacity of 2.8 MW, they are characterized by low utilization of the available hydro potentials, so the electrical and mechanical equipment and plants need to be replaced and modernized. Improving the efficiency of power plants, maximum use of the hydro potential, as well as a higher level of automation and remote control, are the general objectives of the project.	0	0
1T	Electric cars	This measure foresees the development of a whole set of e-mobility elements, such as: standards, regulatory frameworks, environmental and energy policies, established practices, products and services, user experiences and needs, and charging infrastructure.	23	65
2T	Financial incentives for electric, plug-in hybrid and full hybrid vehicles, both for citizens and companies/ entrepreneurs	The aim of the grant is to directly encourage the procurement of environmentally friendly modes of transport, within the implementation of measures to improve air quality and improve the quality of the environment. The total value of the grants for the purchase of electric and hybrid vehicles (category M1) is €100 000, of which €50 000 is intended for the purchase of electric vehicles and the remaining €50 000 for the purchase of hybrid vehicles.		1
1I	Uniprom KAP: electrolysis cell replacement and overhaul (2020–2024) and ETS (2025–2030)	In recent years, several environmental and technological improvements have been carried out (e.g. use of LNG instead of fuel oil) at the aluminium production plant. According to the operator's development plan, the technological improvements on the electrolysis cells have been considered, thus achieving an increase in production output and better metal quality with higher environmental standards. From 2025, the industrial plant will participate in the emissions trading scheme and will be bound to emission limits.	76	537
2I	Reduction of HFCs in line with the Act Acknowledging	In April 2019, Montenegro officially became a member of the Kigali Amendment. The obligations arising from the amendment is to	43	158

	Amendments to the Montreal Protocol	<p>reduce the consumption of HFC substances according to the following dynamics: A freeze of HFCs consumption levels in 2024 keeping them as the baseline (average HFC consumption levels for 2020–2022 + 65% of the HFC baseline):</p> <ul style="list-style-type: none"> • 10% reduction by 2029 • 30% reduction by 2035 • 50% reduction by 2040 • 80% reduction by 2045 		
W1	Reduction of bio-waste within municipal waste	<p>The implementation of the Landfill Directive (1999/31/EC) requires a reduction of the biodegradable waste being landfilled. Therefore, it is planned to increase the separate collection of municipal waste, hereby achieving a decrease in the organic waste being disposed in landfills. This is to be achieved by a system of primary separation (two bins – dry and wet), a network of waste collection in rural areas, construction of recycling yards in municipalities, equipment for waste collection, as well as educational and awareness-raising activities. The implementation of these measures is already ongoing, and will be continued to achieve the following targets, as set in the Negotiation Chapter 27:</p> <p>Share of biodegradable municipal waste disposed to landfills will be reduced:</p> <ul style="list-style-type: none"> • to 75% of the 2010 level by 2025 • to 50% of the 2010 level by 2029 • to 35% of the 2010 level by 2033 	50	225
W2	Increase of connection rate to the sewerage system (target 93% by 2035)	<p>The construction of sewerage connection systems and wastewater treatment plants in recent years has led to a decreased amount of wastewater collected in septic tanks and released untreated into the aquatic environment. According to Negotiation Chapter 27 (February 2018), Montenegro, sets the target that by 2035 93% of the population will be connected to sewerage systems except for agglomerations of less than 2000 PE which are not obliged to comply with the UWWTD. The remaining percentage of the population, which cannot be connected to the network for technical reasons, will be served by individual systems according to UWWTD. With this approach, by the end of 2035, wastewater management in all agglomerations will be provided according to the UWWTD.</p>	16	96

Annex III: Parameters and Assumptions

- Annual relative GDP growth: considering moderate growth after 2023

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GDP growth in %	5.1	3.9	-6.8	4.9	4.2	3.4	1.5	1.25	1.0	0.75	0.75	0.75	0.75

Source of data: Smjernice makroekonomske i fiskalne politike za period ¹2020–2023, 3rd National Communication – 2024–2030

- Population: used for projections in the waste sector

2018	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
622 182	672 686	676 582	680 478	684 373	688 269	692 165	696 250	700 336	704 421	708 507	712 592

Source of data: Demografski trendovi u Crnoj Gori od sredine 20. vijeka i perspektive do 2050. godine,² Table II-6

- Change in livestock numbers and fertilizer use

	Dairy cows	Other cattle	Sheep	Goats	Horses	Swine	Poultry	Fertilizer use
Rel. change 2018–2030	4.1%	4.1%	11.7%	-21.2%	0.0%	-4.8%	30.8%	-36.0%

Source of data: <http://www.fao.org/global-perspectives-studies/food-agriculture-projections-to-2050/en>

- Wastewater treatment paths

	BAU scenario		NDC scenario
	2018	2030	2030
Population using septic tanks	50%	32%	19%
Population connected to sewerage system and WWTP	28%	58%	74%
Population connected to sewerage system and untreated	22%	12%	7%
Population using latrines or similar	2%	1%	1%

¹ Macroeconomic and Fiscal Policy Guidelines for the period 2020-2023

² Demographic Trends in Montenegro from the Middle of the 20th century and Perspectives until 2050