

European Union - EuropeAid/1365966/DH/SER/RS

Climate Strategy & Action Plan Republic of Serbia

Project Identification No.
EuropeAid/1365966/DH/SER/RS
Service Contract No: 2016/375-531

Low Carbon Development Strategy
with Action Plan (Long-term Strategy)

Frequent Q&A

Date: December, 2019



This project is funded
by the European Union



Project is implemented by:

GFA Consulting Group GmbH / Institute of Communication and Computer Systems / E3-Modelling.PC / GFA South East Europe d.o.o. / European Centre for Agricultural, Regional and Environmental Policy Research



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**Climate Strategy and Action Plan
EuropeAid/135966/DH/SER/RS**

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INTERNATIONAL and EU POLICY FRAMEWORK

1. What is the international framework for combating climate change?

The international framework is mostly determined by the UNFCCC and the Paris Agreement, under which Serbia has submitted a nationally determined contribution that is expected to be updated with more ambitious targets and resubmitted by 2020.

The strategy is Serbia's response to the Paris Agreement, which requires the regular submission of medium-term plans (referred to as Nationally Determined Contributions) and long-term low greenhouse gas emission development strategies.

Furthermore, Strategy preparation is part of the obligation under the implementation of the EU Climate Acquis as contained in the Article 4 of the Regulation (EU) 525/2013 on the Monitoring Mechanism Regulation and represents Serbia's efforts, as a candidate country, to align with the EU's policies and actions.

The strategy contributes to Serbia's fulfilment of the Energy Community's Recommendation 2018/01/MC-EnC on preparing for the development of National Energy and Climate Plans (NECPs) by 2030. Finally, the strategy is also foreseen in the draft Law on Climate Change which prescribes that other sectoral strategies should align with the Low Carbon Development Strategy.

For more information, see chapters 1 (introduction) and 2.1 (policy framework).

LOW CARBON DEVELOPMENT

2. What is low carbon development?

Low carbon development is political and economic development concept aiming at reducing GHG emissions and in parallel achieving the sustainable development of environment, economy, and society as a whole. As the concept of development implies, low carbon development is not a target, but a process, a pathway. As such, a country is considered to have entered the low carbon development pathway, when its economy grows and GHG emissions reduce, at the same time as social balance and environmental protection are enhanced.

The ultimate state of low carbon development is now being considered that of "climate neutrality," which means establishing a balance (net zero emissions) between GHG emissions and absorption of carbon from the atmosphere in carbon sinks.

3. Why is low carbon development important for Serbia?

Low carbon development is the core of the response the international community has found to combat climate change and to avoid the worst climate change impacts, as described by the Intergovernmental Panel on Climate Change. As a landlocked country, Serbia is particularly vulnerable to climate change impacts, namely those associated with extreme weather events such heat waves, floods and droughts.

In the context of the Paris Agreement, Serbia has committed to preparing and delivering Nationally Determined Contributions (NDC) and Long-Term Greenhouse Gas Emissions Strategies. Among the first ten countries and first in the region, Serbia submitted its





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Intended Nationally Determined Contribution (INDC) and committed to a 9,8% GHG emission reduction by 2030, compared to 1990.

The European Commission has recently announced the European Green Deal described as “the most ambitious package of measures that should enable European citizens and businesses to benefit from sustainable green transition”, which commits the EU to carbon neutrality by 2050, and announced an EU climate law to be presented in the first quarter of 2020 (more information on <https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal>). As a candidate country, Serbia is expected to align its policies to those of the EU. While there is great uncertainty on how the world will evolve on this matter, the EU has already announced plans to introduce a carbon border tax aimed at protecting its energy intense industry from competition with those subject to less strict carbon constraints¹.

4. Who is affected by low carbon development?

As all are affected by the impacts of climate change, all are affected by the fight against climate change. All citizens, companies and organizations will have a role to play in reducing GHG emissions and contributing to low carbon development. Reducing GHG emissions is an effort that will be required of the key sectors of the economy, namely energy (including energy use in buildings and in transport); industry, agriculture, forestry and waste.

5. How long will low carbon development take for Serbia?

As other countries with the similar socio-economic development, Serbia is expected to take a slower pathway towards low carbon development than other more advanced economies.

The most advanced economies, namely in Europe, are aiming to achieve carbon neutrality (what many consider now to be the ultimate goal of low carbon development) by 2050. Serbia’s pathway to carbon neutrality is likely to be slower due to the very specific socio-economic circumstances of the country. This slower pathway is aligned with the UNFCCC principle of common but differentiated responsibilities and respective capabilities.

STRATEGY with Action plan

6. How was the strategy prepared?

The strategy was prepared by the Ministry for the Environment with the support of the IPA Project Climate Strategy and Action Plan funded by the European Union.

The project was overseen by a steering committee and stakeholder participation was mostly assured by the project working group, which includes representatives of relevant ministries, public and private organizations, including environmental NGOs. Aside from that, possibility for involvement of broader range of stakeholders and interested parties was made available, thus ensuring that strategy was prepared in a transparent, inclusive and participative manner.

¹ This Reuters article provides a quick overview: <https://www.reuters.com/article/us-climate-change-eu-carbontax-explainer/explainer-what-an-eu-carbon-border-tax-might-look-like-and-who-would-be-hit-idUSKBN1YE1C4>





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7. Which modelling tools were used for the preparation of the strategy?

The main tools for preparation of the strategy are the emissions and socio-economic models. The following models have been used:

- The PRIMES – GEM-E3 suite: composed of the PRIMES energy system model and the GEM-E3 model for macroeconomic projections;
- CAPRI - Common Agricultural Policy Regional Impacts, model for agriculture and land use, land use change and model for forestry developed at the Belgrade University for forestry (LULUCF);
- The IPCC 2006 Waste model, for the waste sector

It is important to note that PRIMES-GEM E3 and CAPRI models were among others used by the European Commission for the preparation of EU 2020 climate and energy package, 2030 climate and energy framework and EU 2050 long-term strategy including for the preparation of strategic long-term vision for a prosperous, modern, competitive and climate-neutral economy by 2050.

For more information visit the IPA project “Climate change strategy with Action plan” website: <http://www.serbiacclimatestrategy.eu/>.

8. Which are the most important sectors of GHG emission in 2015 and why was this year chosen as a base year for modelling?

2015 has been used as the most recent year for which historical data has been input into the model. This means that GHG emissions until 2015 are based on actual GHG emissions estimated based on the national GHG emissions inventory prepared by SEPA and that emissions from 2016 onwards are a result of the modelling exercises.

Energy is by far the biggest GHG emitting sector in Serbia, in 2015, accounting for 80,6% of overall emissions (of which, the sub-sector Energy Industries (with 56,7%, Manufacturing industries and construction with 5,6% and transport with 9,8% of overall emissions followed by other sector (residential and commercial) and fugitive emissions both with 4,4% and 4.1% of total GHG emissions respectively. Industrial processes represent 6,3%, Agriculture sector (8,6%) and waste (4,4%).

For more information, see chapter 2.3 (GHG emissions historical trends).

9. What are the objectives of the strategy?

The strategy has one general and five specific objectives.

- General Objective: Reduction of national GHG emissions (excluding emissions from Land Use, Land Use Change and Forestry – LULUCF*) by 13%, up to 2030, and at least 55% to 69% by 2050 compared to 2010.
- Specific objective 1: Reduce GHG emissions covered by the sectors which will be included in the EU Emission Trading (EU-ETS**) by 15,0% in 2030 and between 66,4% and 76,8% by 2050 compared to 2010
- Specific objective 2: Reduce GHG emissions not covered by the EU-ETS by 9,7% in 2030 and between 33,5% and 54,5% by 2050 compared to 2010





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- Specific objective 3: Increase the carbon sink*** in the Serbian Forest by 17% by 2030 and between 22% and 132% by 2050, compared to 2010
- Specific objective 4: Preserve the potential of mitigation measures, determined for 2030 and 2050, by increasing the resilience to climate change of the priority sectors
- Specific objective 5: Promote transition to climate neutral and climate resilient economy and society

For more information, see chapter 4 (General and Specific Objectives)

*Why are emissions / removals from LULUCF excluded in setting the targets?

Emissions or removals from LULUCF are not included in the target so as to ensure consistency with the EU policy where such emissions / removals are also not included and are dealt with under special regulations (Regulation 2018/841, the LULUCF Regulation). This does not mean that emissions / removals from LULUCF are excluded from climate policy. For more information, please visit: https://ec.europa.eu/clima/policies/forests/lulucf_en

** What is EU ETS and is Serbia part of it?

The EU emissions trading system (EU ETS) is a cornerstone of the EU's policy to combat climate change and its key tool for reducing greenhouse gas emissions cost-effectively. It is the world's first major carbon market and remains the biggest one. Serbia is expected to be subject to the EU-ETS once it joins the EU. Before joining the EU Serbia can apply equivalent measures.

For more information on the EU ETS, visit: https://ec.europa.eu/clima/policies/ets_en

*** What is a carbon sink?

A carbon sink is a natural reservoir that stores carbon (these include, in particular, forests and soils).

10. What is the content and structure of the Strategy?

The Strategy and Action Plan conform to the requirement of the Law on the Planning System of the Republic of Serbia and the respective regulation. The following is a brief description of the structure and content of the document

- The introduction presents a justification for the strategy.
- The current situation presents a detailed description of the current policy framework as well as the historical GHG emissions trends. A strategic vision is proposed.
- One Baseline GHG emissions scenario and four GHG emissions mitigation scenarios are described, including the respective costs and social, economic and environmental impacts associated with each scenario. This information supports the decision on which scenario / emissions pathway to choose in the scope of the general and specific scenarios.





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- One general objective and 5 specific objectives are included the strategy
- Measures to fulfil the general and the specific objectives are proposed, together with the aggregate social, economic and environmental impacts
- The costs of individual measures, the resource implications and options for financing the implementation of the strategy are then presented
- A framework for monitoring and reporting the implementation, with performance indicators is proposed
- Finally, the action plan for the period 2020-2030 is included as part of the strategy.

11. What time period does the strategy cover?

The strategy covers the period 2020-2050, with an action plan for the period 2020-2030. This period is aligned with the period contained in the EU climate acquis.

For more information, see chapter 4 (General and specific objectives, in particular the introductory paragraphs).

12. Does the strategy include mitigation and adaptation to climate change?

The strategy is a mitigation strategy. Nonetheless, the strategy includes adaptation measures to address the vulnerabilities in three priority mitigation sectors: Agriculture – food production; Forestry – bioenergy; Hydrology and Water Resources – hydro-electric production. These adaptation measures are aimed at ensuring that the mitigation potential estimated for these sectors is not jeopardized by the impacts of climate change. For more information, see chapter 2.2 (climate change vulnerability and adaptation).

What is the difference between mitigation and adaptation?

Mitigation of climate change means reduction of greenhouse gas emissions (acting at the cause of climate change).

Adaptation to climate change means action to adapt to the impacts of climate change (acting at the side of the effects of climate change).

STRATEGIES' MITIGATION SCENARIOS

13. How are mitigation scenarios developed?

Starting point for the development of mitigation scenarios are long-term macroeconomic projections of the country, since the economic activities are drivers for GHG emissions. Since countries' economies around the world are inter-linked, the macroeconomic development in the country is also affected by the macroeconomic developments of its main trading partners. Main outputs of the macroeconomic projections such as GDP growth, annual growth rates of specific economy sectors, sectoral activity indicators, and others than feed into the energy and other sector specific models.

Furthermore, scenarios are developed based in a set of assumptions valid for all scenarios, such as development of global energy prices, carbon prices and others on which the country individually has no effect on. These assumptions serve as inputs to





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the models, which estimate the future GHG emissions trends resulting from the interactions among the different sets of assumptions.

14. What is the difference between mitigation scenarios projections and climate projection scenario?

An emissions scenario projects the emissions of GHG into the future under a set of specific assumptions (policy, targets...). Usually a baseline scenario shows future emissions trends without the implementation of mitigation measures in addition to those already in place. A mitigation scenario shows future emissions trends resulting from the implementation of additional measures aimed at reducing them.

A climate projection scenario projects future development of climate (usually in 20 to 30 years intervals up to 2100). A climate projection is the simulated response of the climate system to a scenario of future emission or concentration of greenhouse gases (GHGs) and aerosols, generally derived using climate models.

15. What future scenarios have been considered in the strategy?

One baseline scenario and four mitigation scenarios have been considered:

The B2 Baseline Scenario², assumes that no other policies and measures with impact on GHG emissions will be adopted up to 2050 than those in 2015 plus full implementation of Energy Efficiency Action Plan (EEAP) and National Renewable Energy Action Plan (NREAP) as committed.

The four mitigation scenarios are as follows:

- **M1 scenario:** B2 Baseline scenario plus implementation of the EU-Emission Trading Scheme (EU-ETS)
- **M2 scenario:** Implementation of all relevant EU *acquis* in whole is transposed and implemented, achieving 33% GHG emissions compared to 1990; 28,9% RES³ by 2030 and 24,5% enhanced energy efficiency⁴, as the Serbian contribution to the EU target

With a goal to increase its ambitious and contribute to 1,5°C goal (in line with Paris Agreement objective), two additional scenarios are developed:

- **M3 scenario:** Serbia individually achieves the EU 2030 targets (meaning -40% GHG emissions compared to 1990; 32% RES by 2030 and 32,5% enhanced energy efficiency)
- **M4 scenario:** Serbia achieves 80% GHG cuts in 2050 compared to 1990 levels (aligned with the European Commission communication on climate neutrality).

For more information, see chapter 3 (GHG emissions scenarios).

16. What are the main measures to reduce emissions?

The strategy includes measures to reduce emissions in the GHG sectors, namely energy, agriculture, forestry and waste. The key measures include:

² The Baseline Scenario B2 has been selected as a basis against which mitigation scenarios will be compared

³ Share of RES in Total Final Energy Consumption as determined in accordance with provisions of Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources

⁴ Energy efficiency improvement as determined in accordance with provision of the Energy Efficiency Directive (2012/27/EU) relative to EU 2007 modelling projections for 2030





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- Implementation of the ETS Directive (and implementation of equivalent measures)
 - Increasing the use of RES in electricity production
 - Improving the energy efficiency and Increasing use of RES in industry
 - Energy efficiency improvement of heating and cooling infrastructure and promotion of use of RES in households
 - Improving energy efficiency and use of RES in the Tertiary sector
 - Renewal of the passenger fleet and promotion of sustainable passenger transport
 - Renewal of the freight fleet and promotion of sustainable freight transport
 - Winter cover crops (agriculture)
 - Afforestation
 - Close to Nature Forest Management and Climate Smart Approach to Forestry
- For more information, see chapter 5.1 (Measures)

17. What is the purpose and the effects of equivalent measures?

Under Specific objective 1, the following measure is included: Implementation of the ETS Directive (and implementation of equivalent measures). These equivalent measures are aimed at providing price signals equivalent to those of the EU-ETS in a gradual manner, thus allowing for a smoother preparation for the participation of operators of installations in the EU-ETS. The CO₂ tax (when applied to the ETS sector before the ETS enters into force) is an example of an equivalent measure.

STRATEGYS' AMBITION and CARBON NEUTRALITY

18. What is Serbia's maximum potential for emission reduction by 2050?

Serbia's maximum technical GHG emission reduction potential is estimated in the M4 scenario, which shows the maximum, cost-optimum emissions reductions that can be achieved in Serbia by 2050, with existing technologies and ensuring stability of the energy system. In this scenario, emission reduction by 2050 reach 76,2% compared to 1990 and 69,1% compared to 2010 if additional effort would be supported by the corresponding international financing.

For more information, see chapter 3.2 (GHG mitigation scenarios).

19. Can Serbia reach climate neutrality by 2050?

In accordance with the modelling results, it is not technically and economically feasible for Serbia to reach carbon neutrality by 2050. It is expected that with currently known technology and mitigation measures taking and into account specific, Serbia could reach carbon neutrality just after 2070 or even before if new and additional technologies and mitigation options will become commercially viable which is in particularly important for





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the processes emissions and GHG emissions from Agriculture sector and if financing for the additional effort would be ensured.

20. How far from carbon neutrality will Serbia be in 2050?

Not that far. In line with M4 scenario Serbia will in 2050 have just 6,2Miot of net GHG emissions, which is comparing to 56,7Miot in 2015 represent a 89% reductions of net GHG emissions.

For more information, see Appendix D (Sectoral breakdown of emission scenarios)

21. Which are the most important sectors of GHG emission in 2050?

GHG emissions from Industrial processes and agriculture combined will contribute to almost half (46%) of the GHG emissions in 2050 followed by Energy industries which share dropped from 80,6% in 2015 to 19% in 2050 and transport with 16%, followed by manufacturing industry with 10% and other sectors (residential and institutional) and waste sector with 4% each, the remaining 1% goes to fugitive emissions.

This shows a complete inversion in terms of important sectors compared to 2015 (as described in the previous question).

For more information, see Appendix D (Sectoral breakdown of emission scenarios)

ADDITIONAL COSTS AND ECONOMIC, SOCIAL ENVIRONMENTAL EFFECTS

22. What are the costs of “not acting” and how would not acting affect me?

The costliest scenario for Serbia is to ignore the climate related costs in its strategic decisions, continuing an emissions pathway as assumed under the B2 Baseline scenario, meaning, entering the EU and ignoring its climate policies. In such case of “**non-action**,” the total additional system costs⁵ for the energy sector are estimated at the level of **113Bln EUR in the period 2020-2050**. These system costs of “non-action” are higher than the additional system costs of action under any mitigation scenario. The additional system costs in the energy sector alone, in case of non-action (B2 Baseline scenario), are 53Bln EUR higher than the additional system costs of acting (in all sectors) under M2, 37Bln EUR higher than in M3 and 3Bln EUR higher than the costs of the M4 scenario, over the period 2020-2050.

This means that doing nothing is just a little less costly to Serbia than being as ambitious as possible. However, these costs of non-action would take place without any of the benefits of the costs associated with acting, namely in relation to cleaner electricity production and the air quality benefits accruing from it and the corresponding reduction in costs associated with respiratory diseases and deaths from exposure to air pollution and would lead to increasing energy poverty.

⁵ Total system costs include all costs incurred by the operators (such as annuity payments for capital and for direct energy efficiency investments, variable costs for operation and maintenance, fuel, electricity and distributed steam/heat purchasing costs - which reflect all costs incurring by energy suppliers, including taxes, ETS, etc; direct tax payments and disutility costs - income compensating variation of utility applicable for residential, services and transport of individuals), as well as the costs incurred by the rest of the economy in order to get the required energy services. Total additional system costs are estimated in comparison with the baseline scenario.



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For more information, see chapter 3.3.1 (Costs)

23. What are the costs of implementing the emissions reduction measures?

Measures proposed by the Strategy require additional investments across different sectors than those in a case of "no-action" (B2 Baseline scenario). These additional investment costs are estimated at 6,5Bln EUR for the period 2020-2030 and between 37,8 and 76,8Bln EUR for the period 2030-2050, depending on the pathway (upper or lower) Serbia chooses.

Such additional investment costs will be shared among consumers/households (for example in buying more efficient cars and electrical appliances or by isolating their dwellings), investors/companies (new trucks, renewable energy sources) and the state (e.g. renewal of the public transportation system and afforestation in state owned lands). For more information, see chapter 6.1 (costs of implementation).

24. How financing of Strategy implementation works

Policies and Measures needed to implement the Strategy objectives are financed through "polluter pays principle" where revenues are collected from those emitting GHG or using energy from fossil fuels as final consumers are redistributed back to the economy for supporting emission reduction measures and transition to low carbon economy and supporting the most vulnerable citizens.

For more information, see chapter 6.2 (Financing options of the strategy)

25. How will this strategy affect me as a citizen?

The implementation of the strategy will lead Serbia to a low-carbon development trajectory, which, together with all other countries in the world, will prevent dangerous concentrations of greenhouse gases in the atmosphere and the corresponding impacts of climate change.

The implementation of this strategy will ensure the competitiveness of Serbia's business and trade in the global, but especially in the regional, market, given that Serbia's most important trading partners are EU Member States (see question 3 on the carbon taxation at the EU borders). By remaining competitive, jobs and economic prosperity of Serbia will be preserved.

As mentioned above, the socio-economic impacts of strategy implementation range from slightly negative to slightly mildly positive, meaning that in most circumstances costs are balanced by benefits. In the case of air quality, however, the benefits are extremely positive. For example, air pollutant emissions (namely PM2.5, which most health problems are associated with) can be reduced by as much as 49% by 2050 compared to the baseline scenario. To the same extent, it can also result in a reduction in the costs of respiratory and other illnesses caused by exposure to air pollution.

For more information, see chapters 5.1 (Measures) and 5.2 (Impacts of measures)

26. Will low carbon development affect employment and GDP?

The implementation of the strategy, and thus low carbon development, has a very small long-term impact on GDP: GDP will continue to grow in all scenarios, but at a slightly





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lower rate than in the baseline scenario. In some circumstances, the impact on GDP can even be close to zero.

The same applies to the impact on jobs: The impact of the implementation of the measures is insignificant or close to insignificant, as jobs will continue to grow in Serbia, but at a slightly lower rate than in the baseline scenario. In some circumstances, the impact on jobs might even be slightly positive.

For more information, see chapters 5.2.1 (social impacts) and 5.2.2 (economic impacts).

27. What are other positive effects of implementation of Strategy?

The implementation of the strategy will bring Serbia into the pathway towards low carbon development, which, together with all other countries in the world will prevent dangerous concentrations of greenhouse gases in the atmosphere and the corresponding impacts of climate change.

Implementing this strategy will ensure Serbia's business and trade competitiveness in the global, but in particular in the regional market, taking into account Serbia's most important trade partners are EU Member States (see question 3 on the EU border carbon tax). By remaining competitive, Serbia's jobs and economic prosperity will also be preserved.

As mentioned previously, the socio-economic impacts of the implementation of the strategy range from slightly negative to slightly positive, meaning that in most circumstances the costs are balanced out by the benefits. In the case of air quality, the benefits are, however, extremely positive. For example, emissions of air pollutants (namely, PM_{2.5} with which most health issues are associated), can be reduced as much as 49% by 2050 compared to the baseline scenario. This may also result in a reduction, by the same magnitude, in the costs associated with deaths related to respiratory and other diseases caused by exposure to air pollution.

The implementation of the strategy is deemed not to have any significant negative impact on gender equality with both men and women being particularly affected by and particularly benefited from different aspects of the implementation of the strategy.

For example, measures related to energy efficiency will have a positive effect on women, while measures resulting in the increase of energy prices will have some negative effects. On the other hand, men will be predominantly negatively affected by measures in energy sector while measures in forestry sector will have positive effects on men.

For more information, see chapters 5.2.1 (social impacts) and 5.2.3 (environmental impacts).

