

Climate Protection Policy of the Czech Republic

Update for the period from 2025 to 2050

Summary for Policymakers

2025



Ministry of the Environment
of the Czech Republic

Executive Summary

The Climate Protection Policy is the Czech Republic's contribution to global efforts to keep global warming below 1.5°C compared to pre-industrial levels and to the European Union's common goal of achieving climate neutrality by 2050.

The Climate Protection Policy is a strategic document which focuses on the vision, objectives and gradual transformation pathway of the Czech Republic towards achieving the climate neutrality goal by 2050. The Czech Republic's main objective is to reduce greenhouse gas emissions **by at least 55%** by 2030 compared to 1990 levels through the development of renewable and zero-emission energy sources, accumulation and flexibility, energy savings and the phase out of fossil fuels, including the complete exit from coal mining and combustion for electricity and heat production by 2033. The policy was updated to reflect new EU-level targets and legislation and to ensure affordable clean energy for households and businesses.

In December 2024, the Czech government approved the Czech Republic's National Energy and Climate Plan as a fundamental strategic document for energy and climate fields. The update of the Climate Protection Policy is in line with this approved document and elaborates further on the analytical part with focus on the climate protection.

In line with the Paris Agreement and European legislation, the Climate Protection Policy aims to formulate a long-term strategy for reducing greenhouse gas emissions. The main purpose is to propose specific and effective measures and policies, including scenarios, that lead to climate neutrality in the Czech Republic.

The Czech Republic is active in implementing the European climate policies and the legislation. These documents and legislation include several measures and targets in the areas of energy, industry, buildings, the circular economy, forestry, biodiversity and sustainable agriculture.

The Climate Protection Policy presents a scenario for decarbonising the Czech Republic's economy by 2050, which also meets the commitments arising from the Fit for 55 legislative package. It focuses on describing the current state, trends and vision for the future of individual emission sectors and defines specific measures and instruments for the gradual reduction of greenhouse gas emissions in these sectors.

The Climate Protection Policy also looks at the need for the effective use of funds for projects that will contribute to the decarbonisation and modernisation of the Czech economy, and the importance of interdisciplinary cooperation in addressing the climate crisis in all areas of human life and the environment.

1. Scientific and political context

The Czech Republic is warming at a rate of 0.33°C per decade and it has warmed by 2°C over the last 60 years. Warming is thus proceeding at approximately twice the global average rate.

The impacts of climate change are already easily observable in the Czech Republic nowadays. One of the main impacts is drought in the countryside, which has contributed, among other things, to an extreme bark beetle infestation and increases the risk of fires. The frequency and intensity of extreme weather events have also increased. Scenarios show a further significant increase in the impacts of climate change up to 2100, even if the further average temperature increases would be based on the most optimistic estimates.

There are three important strategic documents that will shape the country's path to a zero-emission economy in the coming decades: the Climate Protection Policy, the State Energy Policy and the National Energy and Climate Plan.

The task of creating a long-term strategy for reducing greenhouse gas emissions is set out in Article 4 of the Paris Agreement and also in the Regulation (EU) 2018/1999 of the European Parliament and of the Council, which contains the process for developing long-term strategies and outlines their basic structure. These strategies should also be consistent in their objectives with the content of the National Energy and Climate Plans. The first climate strategy was the 2017 Climate Protection Policy, which, however, no longer corresponds to the current state of scientific knowledge, development of policies and measures and the Czech Republic's commitments within the European Union.

EU climate policy and legislation is primarily framed by the European Climate Law, the Fit for 55 package, the REPowerEU plan and the Green Deal Industrial Plan. These are not only policies in the field of energy and industry, but also strategies in the areas of biodiversity protection, sustainable agriculture, quality living environment and pollution prevention (including water and air). These frameworks guide specific measures adopted in the form of regulations and directives on the EU level, as well as their financial support.

Climate Protection Policy is the Czech Republic's main strategic document for climate change mitigation and thus complements the Strategy for Adaptation to Climate Change in the Czech Republic and the National Action Plan for Adaptation to Climate Change. It does not replace other sectoral national policies and strategies but complements and develops them appropriately. The crosscutting target should be the natural inclusion of climate protection aspects in all national and regional strategies and decision-making processes, particularly in the areas of planning, financing and investments.

2. Vision, goals and priorities

The Climate Protection Policy of the Czech Republic is a concept developed by the Ministry of the Environment of the Czech Republic which sets out the basic objectives and strategy of the Czech Republic in the field of climate protection in the long term. Its purpose is to propose effective and efficient measures leading to the reduction of greenhouse gas emissions and to achieve climate neutrality by 2050 while ensuring favourable socio-economic development. The medium-term goal is to achieve the energy and climate targets set for 2030 in the updated Czech National Energy and Climate Plan, which will bring a significant reduction in national greenhouse gas emissions.

A broad range of new policies and measures will be needed to implement these objectives. The purpose of the Climate Protection Policy is therefore to present a comprehensive overview of measures for the next 5–10 years that will be in line with the 2030 targets and the long-term vision for 2050. As the Czech economy is strongly linked to the global and, in particular, the European economy, this set of measures also ensures compliance with European legislation and, at the same time, with the decarbonisation trends of other European countries.

Decarbonisation affects a significant part of the Czech economy and is therefore an extremely complex challenge. In order to deliver informed and economically effective measures, it uses robust modelling of the possibilities and scenarios for decarbonising the Czech economy.

The Policy and its targets cover all GHG emissions and all sectors of the economy excluding international bunkers.

The Czech Republic's goal is to reduce greenhouse gas emissions by at least 55% compared to 1990 levels by 2030, i.e. to approximately achieve 87 Mt CO₂ eq. The model decarbonisation scenario even shows the possibility of reducing the Czech Republic's emissions by up to 68% by 2030, mainly thanks to the development of renewable energy sources, the implementation of energy savings and the phasing out of fossil fuels, including the complete exit from coal mining and combustion for electricity and heat production by 2033.

This main objective is further broken down into sub-objectives. The key tools for decarbonisation and reducing the use of fossil fuels are the development of renewable energy sources (RES) and increasing energy efficiency. The Czechia's targets for 2030 are as follows:

- to increase the share of RES in final energy consumption to 30.1%,
- to reduce final energy consumption from the current 1064 PJ in 2021 to 852 PJ.

Other sub-targets for 2030 directly relate to greenhouse gas emissions, with percentage reductions relative to 2005 (when the EU Emissions Trading Scheme was launched):

- For the EU ETS system (covering large emitters in energy, industry and aviation), there is only a common EU target to achieve a 62% reduction in emissions in these sectors. According to the model decarbonisation scenario, emissions under the EU ETS in Czechia could be reduced by as much as 72%.
- The Effort Sharing Regulation (ESR) sets targets for reducing all remaining emissions outside the EU ETS (except for the land use and forestry sector below). These are the sectors of buildings, land transport, agriculture, waste and parts of industry and energy outside the EU ETS. For Czechia, the target is a 26% reduction of these emissions. According to the model decarbonisation scenario, Czechia could achieve a reduction of up to 34% in these sectors.
- In the area of land use and forestry, the Czechia's target is to achieve carbon sequestration (i.e. negative emissions) of –1.2 Mt CO₂eq by 2030. According to the model decarbonisation scenario, the Czechia can achieve negative emissions of -3.8 Mt CO₂eq in this area.

The goal for 2050 is to strive towards the climate neutrality, i.e. a balance between remaining greenhouse gas emissions and natural and industrial carbon dioxide absorption and storage. An important secondary goal for achieving climate neutrality is to reduce the share of fossil fuels (used without greenhouse gas capture technology) in primary energy consumption to 0%.

According to the model decarbonisation scenario, the Czech Republic's total net emissions in 2050 would still be slightly positive (at around 4% compared to 1990). Future developments are subject to a high degree of uncertainty; modelling is based primarily on knowledge of existing technologies

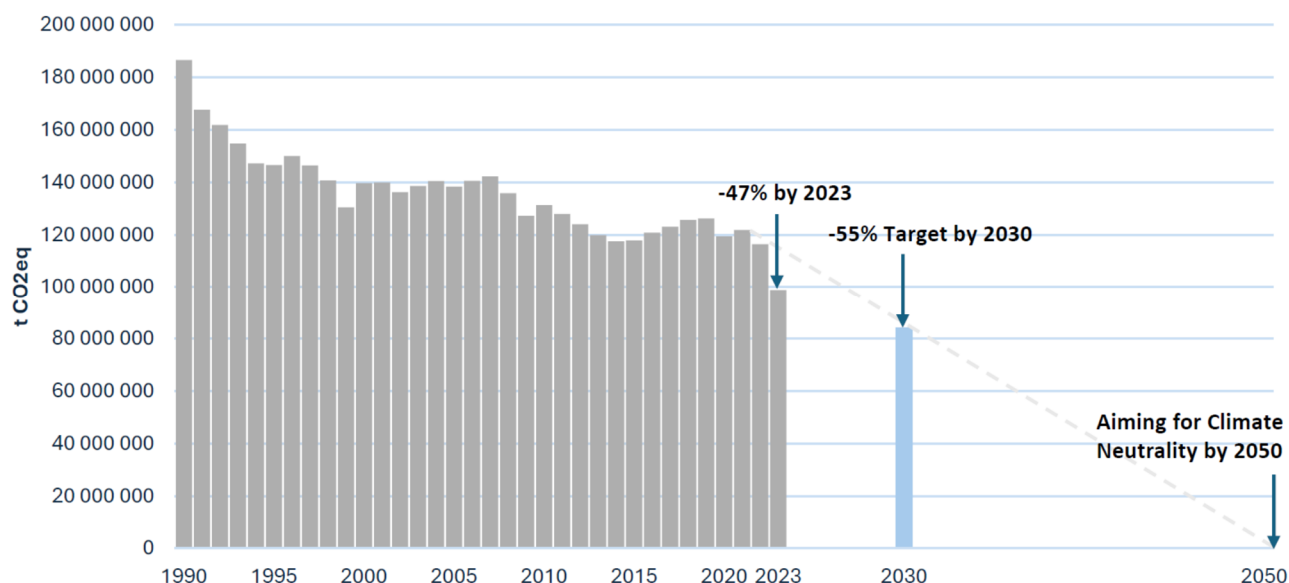
and takes economic factors into account. Under these assumptions, modelling was unable to achieve overall emission neutrality, and the decarbonisation trajectory will continue to be refined over time.

Efforts to achieve carbon neutrality therefore require not only reducing climate impacts in all segments of the economy and society, but also significant support for research and development.

The main Czech priorities for the period up to 2030 are as follows:

- **Effective use of economic instruments and all available sources of funding** to accelerate the transition to climate neutrality, meet the Czech Republic's commitments by 2030 and, at the same time, maintain social cohesion in the Czech society (including a just transition for coal regions and social measures).
- **Rapid decarbonisation of the electricity and heating sectors** in line with the goal of phasing out coal in electricity and heat production by 2033 and in line with the expected further electrification and thus increase in electricity consumption in the industry, transport and buildings sectors. During this period, Czechia should add at least 8 GW of installed solar capacity and 1.2 GW of installed wind power capacity.
- **Increasing energy efficiency in all sectors of the economy** with the aim of gradually decarbonising industry and services, including transport, and considerably reducing energy consumption in the buildings sector and promoting comprehensive and intelligent solutions.
- **Reducing energy and emission intensity in the transport sector**, using zero-emission and low-emission transport wherever possible, and promoting active mobility, especially in built-up areas of municipalities and cities. Given the density of the Czech Republic's railway network, road and rail transport needs to be optimised so that the effect of the European legislation to reduce emissions in the Czech Republic is as greater – this applies in particular to e-mobility and hydrogen.
- **Launching decarbonisation of industry** in line with the Czech Republic's commitments to minimise greenhouse gas emissions and pollution without jeopardising the competitiveness of industry. Consider supporting the voluntary introduction of ESG into companies of all sizes. Also support research and development of CCUS technologies so that it could be applied in the Czech Republic in a cost-effective manner.
- **Change the regulatory framework for land management** (i.e. primarily forestry and agriculture) to support nature-friendly agricultural practices and natural forest regeneration, and to be consistent with other objectives in the areas of climate change adaptation, biodiversity protection and soil protection. In particular, it is necessary to effectively prevent further widespread disruption of the forest environment, which, among other things, significantly increases emissions and threatens the sustainable use of wood biomass for energy purposes. Furthermore, in the **waste** sector, it is necessary to significantly reduce the landfilling of biodegradable municipal waste, which is the main source of emissions in this sector.
- **Regional development and careful spatial planning with a view to achieving carbon neutrality through comprehensive solutions in the territory, in municipalities, towns and regions.** By using regional energy concepts, supporting community energy, supporting research, development and innovation in the field of climate protection, involving citizens, associations and companies in activities covered by the European Climate Pact, and supporting regional initiatives, it is possible to

achieve a significant increase in the contribution to reducing greenhouse gas emissions through 'soft' instruments.



3. Greenhouse gas emissions projections by 2050 and assessment of the decarbonisation impacts

At the heart of the modelling is a decarbonisation scenario (WAM, With Additional Measures), which represents a realistic plan for the Czech Republic's transition to climate neutrality.

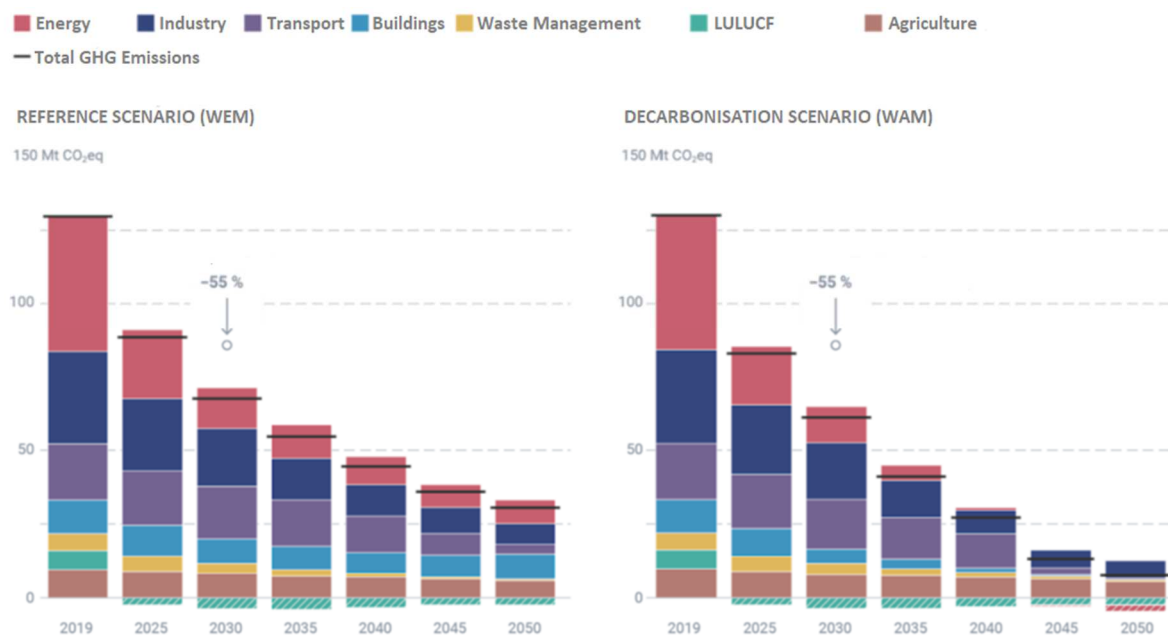
The main assumptions of the decarbonisation scenario are:

- the effort to achieve climate neutrality at the level of the Czech Republic, or the maximum degree of decarbonisation in the modelled sectors by 2050,
- cost optimisation, i.e. achieving this goal (subject to other given constraints) at the lowest possible cost,
- taking into account the EU's Fit for 55 policy package and its implementation in the Czech Republic, in particular the assumption of EU ETS allowance prices as recommended by the European Commission for modelling the impacts of decarbonisation, and
- effective and full use of emissions trading revenues for decarbonisation and a just transition.

New installed capacity by 2030 is expected mainly from renewable sources. This represents 8 GWe from solar sources, 1.2 GWe from wind sources and 0.4 GWe from biomass sources. The share of RES in gross final energy consumption thus reaches 30%, while the share of RES in gross final electricity consumption is 28%. The stability of the energy supply network was also modelled.

The decarbonisation scenario does not anticipate any fundamental behavioural changes (e.g. a change in attitudes towards car ownership and transport, a reduction in heating temperatures, etc.), but it does include a continuation of the current trend towards changing dietary habits. No EU regulation is anticipated beyond the Fit for 55 package and other EU regulations adopted during the 2019–2024 term of the European Commission.

The decarbonisation scenario meets most of the European greenhouse gas emission reduction targets for 2030. It shows the potential for reducing emissions by 68% by 2030 and 96% by 2050. The following figure shows the expected decrease in emissions in the Reference and Decarbonisation scenarios for the main GHG emission sectors.



Modelling also shows that the decarbonisation strategy could lead to reducing energy import dependency from 42% today to 26% in 2050 and support economic growth by 1 to 2 percentage points. This is because most of the necessary investments are made in domestic products and services, unlike the operating costs for fossil fuels, which are predominantly imported from geopolitically problematic regions.

Main economic conclusions

- **Decarbonisation requires significant investments**, and the development of functional models for financing energy infrastructure, renewable energy development and energy storage will be key to supporting and meeting investment needs. Roughly one-third of the costs of investments and other measures will be covered by EU funds and revenues from emissions trading.
- **In addition to the transformation of energy and industry, the building and transport sectors must also be a priority.** A successful wave of renovation and the development of low-emission transport will reduce the risks of energy and transport poverty and enable the transformation to be socially acceptable.
- **Investments in decarbonisation have a positive multiplier effect on GDP**, but the implementation of investments depends on the quality of public institutions, the speed of permitting processes and, last but not least, the effective preparation of investment projects using green technologies on the part of the business sector and households.

- **Decarbonisation must be linked to sensitive social policy and the transformation of coal regions**; the application of new technologies and the prosperity of society also depends on priorities in the areas of education and labour market policy.

4. Cross-cutting policies and measures

Measures whose implementation contributes to reducing greenhouse gas emissions in multiple sectors include, in particular, the **European Union Emissions Trading System (EU ETS)** and Integrated Pollution Prevention and Control (IPPC). Another example is **the EU taxonomy**, which is primarily a tool for classifying sustainable economic activities. Their functioning is regulated by European legislation, which, in the case of directives, is transposed into Czech law by the relevant legislation.

However, cutting-edge **science, research and innovation**, as well as **awareness-raising, education and training** of future generations, are also key to successful decarbonisation. Environmental standards enforced by legislation are to be complemented by voluntary environmental protection instruments.

At the same time, the EU ETS generates significant revenues from the auctioning of emission allowances, which are also used by EU Member States to finance measures to reduce emissions through modern technologies and the replacement of fossil fuels.

The effective use of revenues from the EU ETS is key to successful decarbonisation. These are funds that will be available to the Czech Republic in this decade in the Modernisation Fund and the Social Climate Fund, and from the proceeds of the sale of emission allowances in the EU ETS. The effective use of these funds is absolutely crucial to provide additional support for strategic investments in decarbonisation, adaptation and additional social measures in order to achieve the climate and energy targets by 2030 and climate neutrality by 2050, maintaining the competitiveness of Czech industry and preventing the negative economic and social impacts of the transition. These funds will ensure an effective transition and support the positive impacts of the transition on Czech households and industry. The policy also proposes allocating at least 0.5% per year of the proceeds from emission allowances to help the poorest and most vulnerable developing countries.

Integrated Pollution Prevention and Control is an advanced method of regulating selected industrial and agricultural activities while achieving a high level of protection for the environment as such. The aim of IPPC is to prevent or reduce pollution by selecting appropriate production processes and technologies. At the same time, there should be savings in the costs of raw materials, energy and end technologies consumed. A higher level of environmental protection is achieved through **the use of Best Available Techniques (BAT)**. In 2024, a revision of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions was approved. This primarily extends the scope of the directive to a larger number of facilities, in particular intensive livestock farming, and now also includes the extraction of industrial minerals and metals and large-scale battery production.

The vision for the future is to provide a set of state-validated data and methodological procedures to enable the implementation of sustainability financing policies. From a climate protection perspective, this involves an application for assessing investments in terms of their climate impact, as well as applying the principle of energy efficiency, primarily in the setting of subsidy titles and in public procurement. The vision for the future is to further **strengthen the measurability of the transition in terms of the necessary investments** and to support the

preparation of investment projects so that they are in line with decarbonisation targets and are resilient to the impacts of climate change. These principles should also be applied in the context of financing from national sources and in public procurement. The application of the Do No Significant Harm principle will also play an important role.

The aim of **public communication** on climate protection and decarbonisation policy is to increase acceptance of the measures taken by the public and key players from the academic, business and political spheres. It is therefore important for the Ministry of the Environment to be able to communicate the opportunities available to these players. These include, in particular, the modernisation of industry, services, housing, public institutions and municipalities. This modernisation can effectively save these actors operating costs, and they can obtain support from the state for their initial investments. However, it is also important that the public is informed about the social aspects of the measures and must be assured that their standard of living will not decline. The communication campaign should also be accompanied by educational activities.

Environmental education, training and awareness-raising, and environmental consulting are globally recognised fields that have been developed in Czechia for decades and are linked to broader education on sustainable development. To achieve their goals, a whole system based on the State Programme for Environmental Education, Training and Awareness in the Czech Republic has been developed. Climate change is one of the key topics of the State Programme for 2016–2025. Objective 5.5, entitled Climate in Context, calls for the provision of opportunities for key target groups to understand the causes of climate change and its negative impacts in the Czech Republic, Europe and the world, so that they are aware of and knowledgeable about international climate protection negotiations and have the competence to adopt and implement mitigation and adaptation measures.

5.1. Energy

Emissions from the energy sector, mainly CO₂ emissions from the combustion of coal and natural gas in the production of electricity and heat, amount to approximately 40 Mt CO₂ eq per year and represent about 33% of all emissions produced in the Czech Republic. The vast majority of emissions comes from large power plants and heating plants covered by the Emissions Trading Scheme (EU ETS), where emissions fell by 30.82% between 2005 and 2022. The energy intensity of the Czech economy decreased by 34.8% between 2010 and 2020, reaching 7.8 MJ/EUR in 2020, which is still almost double the energy intensity of the EU27.

The priorities for 2030 are to:

- **Accelerate the development of renewable energy sources**
especially photovoltaic and wind power plants, biomethane and ambient energy.
- **Develop storage and consumption flexibility**
to effectively ensure power balance and integrate solar and wind energy.
- **Transform heating**
including the implementation of energy savings, the use of large heat pumps, and energy storage.
- **Build resources for a secure transition away from coal mining and combustion**
for electricity and heat production by 2033.

The main elements of the Czech energy transition include:

- The development of renewable energy sources (primarily photovoltaic and wind power plants, the use of biogas primarily for biomethane production, secondarily in cogeneration, geothermal energy and waste energy and ambient energy using heat pumps),
- Transformation of the heating industry to effectively meet the energy needs of its customers (shift from the concept of heat supply to the provision of energy services),
- Development of community energy and modernisation of networks, including the use of storage, aggregation and other flexibility elements,
- Construction of new nuclear power plants,
- Controlled phase-out of coal mining and use for electricity and heat production by 2033 at the latest and ensuring sufficient installed capacity of new flexible sources for system management,
- Ensuring conditions for the use of renewable hydrogen, which will gradually replace natural gas together with other renewable gases.

By 2030, photovoltaic and wind power plants will play a key role in the decarbonisation of the electricity sector. According to the update of the National Energy and Climate Plan, the construction of new 8 GWe of installed capacity of photovoltaic power plants and 1.2 GWe of installed capacity of wind power plants connected to the grid is planned by 2030. Thanks to the new RES capacity, their share of final consumption should reach at least 30% by 2030.

In the longer term, by 2040, according to the National Energy and Climate Plan, up to two new nuclear power plant units are expected to be built in Dukovany, another two new units in Temelín, and at least one SMR with a total capacity of 4.7 GWe.

Another key task for the coming years is the modernisation of the Czech heating industry, which is currently undergoing a transition from coal to other energy sources (natural gas, biomethane, biomass, ambient energy, geothermal energy, waste energy, waste heat and nuclear energy) and then also the development of cogeneration, where there could be a potential of about 3 GW of new installed capacity by 2033.

At present, roughly half of the sources in the heating industry still function only as heating plants without also producing electricity, which means that the potential of these sources is not being fully exploited. The heating industry has great potential to be a very efficient way of meeting the heating needs of households and businesses, but it must undergo a fundamental transformation beyond the current modernisation process.

Important measures also include, for example, mapping and defining acceleration areas to speed up the development of renewable energy sources, setting rules for community energy and supporting the production, distribution and use of biomethane.

5.2. Industry

In 2021, Czech industry produced 31 Mt CO₂eq (2.9 tonnes of CO₂ eq per capita), which is approximately 24% of greenhouse gas emissions in the Czech Republic. In the 1990s, emissions from industry fell significantly, mainly due to the closure of some energy-intensive industries, but also to a lesser extent due to the introduction of energy-saving measures. Since then, the decline in emissions in the sector has slowed.

The steel and other metals manufacturing sector is the most emission-intensive (28.7%). Czech steel is used, for example, in engineering and construction. In second place is the production of minerals and cement (19.9%). These are key to the construction industry, but glass production also falls into this category. Next in line is the chemical industry (17.5%).

The priorities for 2030 are to:

- **Clarify the strategy for decarbonisation of industry.**
- **Electrify and deploy other currently available technologies** to save emissions and energy (with investment and other state support).
- **Prepare conditions and infrastructure** for the future use of low-emission **hydrogen** and **CCUS**.
- **Develop the principles of the circular economy**, increase the recycling rate of emission-intensive raw materials, extend the life of products.

The replacement with low-emission fuels, primarily electricity (where technically possible) and hydrogen (where direct use of electricity is not possible), are the main solutions for combustion emissions. To a lesser extent, biomass or biomethane can also serve as a substitute for fossil fuels.

Process emissions can largely be addressed by changing production processes and technologies (e.g. replacing reducing agents), replacing input raw materials with secondary or low-carbon alternatives (e.g. iron ore and coke with steel scrap) or CO₂ capture technology with its utilisation or geological storage (CCUS), which is suitable for chemical processes that cannot be replaced in production.

By 2030, it will be possible to reduce emissions in industry by deploying mainly existing technologies that contribute to reducing emissions, improving operational efficiency, utilising waste heat and other forms of energy savings, and further applying the principles of circularity. Even at this stage, an increase in electricity consumption must be expected, as many measures will involve the electrification of processes. At the same time, it is necessary to prepare the infrastructure needed for the complete decarbonisation of industry in the coming decades.

In the coming decades, it will be possible to decarbonise large parts of certain industrial sectors and processes, particularly in light industry (but in some cases also in heavy industry), through further electrification. However, this option does not apply to certain segments of heavy industry, in particular the production of cement, fertilisers and, to a certain extent, steel, whose complete decarbonisation cannot be achieved without the use of hydrogen and CO₂ capture and utilisation. The successful decarbonisation of Czech industry in the 2030s and 2040s therefore depends on the development of infrastructure for low-emission electricity, renewable or low-carbon hydrogen and CCUS.

5.3. Buildings

In 2021, the building sector produced approximately 11.6 Mt CO₂ eq. The building sector accounts for approximately 9% of total greenhouse gas emissions. These are mainly emissions from the combustion of fuels in households for heating and preparation of hot water. Approximately one-fifth of these greenhouse gas emissions come from commercial and public buildings. Households

have long accounted for approximately 30% of total final energy consumption in the Czech Republic.

The priorities for 2030 are to:

- **Increase the rate of deep renovations to 3% of buildings per year**, including public buildings and households at risk of energy poverty.
- **Raise energy and emission standards for new buildings** so that these buildings are energy efficient, use sustainable building materials and are well adapted to climate change.
- **Increase the use of renewable energy sources in new buildings and renovations**, such as ambient energy or solar energy.
- **Increase the proportion of buildings connected to efficient heat supply systems** that can use a wider range of technologies for decarbonisation.

The vision for the transformation of the buildings sector is based on the following principles:

1. Deep renovation

Most existing buildings, where possible in terms of heritage protection and social significance, will gradually undergo deep renovation.

The basic modelled scenario takes into account the progressive building renovation scenario from the Long-Term Building Renovation Strategy, which was also modelled in the decarbonisation scenario. Between 2025 and 2030, the annual rate of high-quality building renovation will gradually increase to 3%. This is a significant increase, but within realistic limits.

There is also considerable potential for improving energy efficiency in public and state-owned buildings, with the state setting an example in this area and meeting the requirements set out in the Energy Efficiency Directive.

2. High energy standards in new buildings

All new buildings will be constructed to a high energy standard, making maximum use of renewable resources, using sustainable materials and environmentally friendly processes to minimise emissions throughout the building's life cycle. Buildings will be adapted to climate change and will provide a high-quality indoor environment for the inhabitants of the Czech Republic. Higher use of wood in building construction will contribute significantly to long-term carbon sequestration.

The use of modern air conditioning technologies and taking this requirement into account when designing the overall concept of the building will also significantly contribute to reducing the energy requirements for air conditioning buildings: the size and layout of the building, the orientation of the building, the size and placement of windows, thickness of walls, internal layout allowing air flow, shading and cooling functions of vegetation and water features both inside (green walls) and outside (green roofs, vegetation on vertical and horizontal structures, trees) and the use of external sunshades.

3. Increasing renewable energy sources in new buildings and renovations

In line with the revised Renewable Energy Directive, the Czech Republic should also set a target in line with the indicative target of achieving at least a 49% share of energy from renewable sources in the Union's final consumption in the buildings sector. EU Member States should take this requirement into account in their building regulations and support programmes. This is an extension of the existing requirement to set a minimum amount of energy from renewable sources for new buildings and renovations.

4. Increasing the share of buildings connected to efficient heat supply systems

Connecting buildings to efficient heating systems, which will be gradually decarbonised in line with the requirements of the Energy Efficiency Directive, can significantly contribute to meeting the targets in this sector and complement building renovations.

5.4. Transport

Passenger and freight transport in the Czech Republic causes 20 Mt CO₂eq annually, which corresponds to 15% of the Czech Republic's emissions, and is the sector where emissions are increasing the most in connection with the growth in transport performance and demand.

The priorities for 2030 are to:

- **Significant investment in rail infrastructure and public transport**, which will enable the transfer of part of road freight transport to rail and part of individual car transport to public transport in the future.
- **Develop charging and refuelling infrastructure** and biomethane production facilities, which are necessary for zero-emission road transport.
- **Accelerate the transition to zero-emission vehicles through investment support** for businesses, the public sector and public transport.
- **Appropriately set up support for transport decarbonisation from the Social Climate Fund** and communicate clearly with citizens.

Reducing emissions in transport is closely linked to **energy savings**. Therefore, the following is essential for the decarbonisation of transport:

1. **Strengthen modes of transport that are energy efficient** and reduce the share of energy-intensive car transport: i.e. develop **walking, public transport and rail freight transport**.
2. Seek **energy savings within individual modes of transport**. Of the current technologies, **electrification**, i.e. the gradual replacement of combustion engines with electric ones and further electrification of rail transport, can bring significant energy savings.

In some remaining transport segments, significant energy savings are practically impossible. In the case of air transport and part of road freight transport, other fuels can also play a significant role in decarbonisation: the use of low-carbon hydrogen, advanced biofuels or synthetic fuels.

The decarbonisation of passenger transport rests on several pillars:

- **High-quality, zero-emission public transport** is a key component of future passenger transport, which also fulfils an important social service role. Its significant development will enable a further increase in its share of transport performance. This applies to cities (construction of new metro, trolleybus and tram lines), suburban regional rail transport and long-distance rail transport. **New public transport concepts** (e.g. support for e-carsharing, new demand-responsive transport systems, and perhaps, at a later stage, autonomous vehicles, which could completely change the nature of public passenger transport) may play a complementary role.

- An essential part of this is **the decarbonisation of individual transport**. This will probably be based primarily on the transition to **battery electric vehicles**.
- **Well-thought-out urban planning** for the further development of cities and towns, including well-thought-out incentives for users of individual car transport, can play a supporting role. These measures can facilitate and **strengthen the use of public transport, walking and cycling**.

The development of public rail transport requires significant **development of the rail infrastructure**, which is currently at the limits of its capacity on key routes. Although many rail projects are planned for this decade, this will require a longer-term effort. The development of the railways must also enable **the transfer of part of freight transport to the railways**.

A significant transition to electromobility or hydrogen mobility requires:

- **Competitive prices of zero-emission and low-emission vehicles with those of conventional vehicles**
- **Charging and refuelling infrastructure**, including a large number of slow charging points in cities (domestic, corporate and public charging points on the streets). The development of charging infrastructure in the coming years is key to getting electric mobility off the ground in Czechia, which also requires the development of the electricity distribution network.
- **Sufficient affordable low-emission electricity and hydrogen**

The decarbonisation of freight transport will take place somewhat later than for passenger transport for technological reasons. It will be based on several pillars:

- Transferring part of heavy and regular transport from roads to **electrified railways**.
- The likely **electrification of delivery** lorries in all weight categories and the development of zero-emission urban logistics.
- **The development of low-emission and zero-emission lorry transport**, which in the coming years may take place primarily through advanced bioCNG and bioLNG vehicles, followed by battery-powered lorries and, especially for longer routes, hydrogen lorries (or synthetic fuel vehicles).
- Another alternative for longer routes is the aforementioned shift of part of truck transport to rail through the development of multimodal transport.

5.5. Landscape management

On the one hand, landscape management emits greenhouse gases, mainly through livestock farming, the use of nitrogen fertilisers and soil cultivation, but on the other hand, it absorbs and stores carbon from CO₂ into biomass and forest and agricultural land. At the same time, agricultural and forestry management in the landscape is essential for the protection of biodiversity, can increase or reduce soil erosion, influences the availability of water in the landscape, and thus also the impacts of possible drought, and fulfils other ecosystem functions. Landscape management therefore represents a complex situation in which efforts to protect the climate and adapt to climate change meet the need to maintain agricultural and forestry production and create a healthy environment for nature and people.

Agriculture in the Czech Republic accounts for 9.1 Mt CO₂eq emissions per year, which is approximately 7.6% of greenhouse gas emissions in the Czech Republic. Approximately half of these emissions are directly related to cattle farming, where methane is produced by the fermentation of food in the digestive tract of cattle. Another half of emissions in agriculture are related to the use of nitrogen fertilisers. In forestry, greenhouse gas emissions have undergone significant developments in recent years in connection with the consequences of the catastrophic bark beetle calamity, which has temporarily transformed the LULUCF sector into a significant source of CO₂ emissions.

Priorities for 2030 include to:

- **Significantly strengthen the health and resilience of forests and agricultural landscapes** and create a diverse landscape structure that fulfils its productive functions, is well adapted to future climate impacts and creates conditions for biodiversity conservation and CO₂ sequestration.
- **Improve practices in the application of nitrogen fertilisers** and use precision and organic farming methods.
- **Support the natural regeneration of forests** and a diverse species, age and spatial composition that corresponds to the given habitat.
- **Strive for the balanced fulfilment of the productive and non-productive functions of forests** and encourage nature-friendly management through an appropriate framework for payments for ecosystem services.

The main objective is to significantly strengthen the health and resilience of forests and agricultural land and to create a diverse landscape structure – i.e. a landscape that is well adapted to future climatic influences, fulfils its production functions, provides space for recreation, creates an environment for the protection and promotion of biodiversity, and sequesters CO₂. Measures for biodiversity protection, climate change adaptation and other aspects of landscape protection are generally consistent with mitigation measures and therefore have a synergistic effect.

Greenhouse gas emissions can be reduced in agriculture, but they cannot be completely eliminated. The main objectives should be **to minimise the use of nitrogenous mineral fertilisers**, improve soil health and make greater use of its sequestration potential. The following measures can contribute most to this:

- **Improving practices in the application of nitrogen fertilisers to reduce N₂O emissions,**
- **Use of precision farming methods,**
- Further reductions in emissions in agriculture can be achieved by optimising livestock farming in terms of breeding technology, feed quality and manure management.

Other important steps to **strengthen the resilience of the agricultural landscape** and increase the sequestration potential of agricultural land include, in particular:

- **Transition to environmentally friendly farming methods** (organic farming, regenerative agriculture, carbon farming, etc.).
- **Exploiting the potential for carbon storage in arable land** through innovative practices (regenerative agriculture, crop rotation, use of biochar) and the systematic creation of conditions for the implementation of these practices, in particular support for research and development of technologies, pilot farms and the creation of an implementation plan for carbon sequestration on agricultural land.

- **Restoration of a diverse landscape structure** through the establishment of landscape features such as hedgerows, copses, avenues, wetlands, etc., and their subsequent maintenance. These features increase the heterogeneity of the landscape and thus its resistance to various stress factors (drought, heavy rainfall, heat waves), prevent soil erosion and accelerated water runoff from the landscape, and promote biodiversity (natural refuge and sources of water and food for many species of animals, plants and fungi).
- Various other measures are also important for adapting the landscape to climate change, such as protection against soil erosion and support for CO₂ sequestration (e.g. the use of cover crops and catch crops, reducing the size of uninterrupted soil blocks by placing landscape features such as avenues, copses or swales, etc.).

In forestry, it is particularly important **to take a differentiated approach according to the condition of the forest in a specific location** and to target the process accordingly. In particular, the following forest management objectives need to be applied:

- **Support natural forest regeneration and strengthen their resilience and stability in view of changing conditions** by increasing the proportion of site-appropriate ameliorative and stabilising tree species and, in general, a diverse species, age and spatial composition that corresponds to the given site.
- **Reduce the numbers of cloven-hoofed game**, which damages young trees, complicates forest regeneration and increases the costs of such regeneration. To this end, it is necessary to amend the Hunting Act to enable effective regulation and restore the balance between forests and game.
- **Support the afforestation of non-forest land** as a fundamental contribution of forests and forestry to mitigation and increasing carbon sequestration potential.
- **Protect existing carbon stocks and increase their sequestration potential** by caring for forest soil.
- **Transition from clear-cutting to undergrowth and selective forms of forest management.**
- **Strive for the balanced fulfilment of the productive and non-productive functions of forests** – it is necessary to create a suitable framework that will enable payments for ecosystem services.
- **Systematically reduce the risk of forest fires** and thus prevent the destruction of vegetation and the release of carbon stocks.
- The increased **use of wood in construction** (or in other long-lasting products) and its processing in Czechia will also play an important role. This area is covered by the new Raw Materials Policy for Wood.

The instruments of the EU's Common Agricultural Policy, which also aims to contribute to climate change mitigation and resilience, will also play a very important role. The Strategic Plan for the Common Agricultural Policy 2023–2027 has significantly increased the contribution allocated to climate change mitigation.

5.6. Waste management

In 2021, the waste management sector produced 5.7 million tonnes of CO₂eq greenhouse gases, which represented 4.8% of total greenhouse gas emissions in the Czech Republic. It is one of two sectors of the economy in which emissions are still growing (the other is transport). The vast majority (94%) of these emissions are methane, which is released during the biological decomposition of waste in landfills (approximately 65% of the sector's emissions).

The main priorities in this area include:

- **Ending the landfilling of recyclable, energy-recoverable and, above all, biodegradable municipal waste.**
- **Modernise biogas stations** to prevent biogas leaks and, at the same time, expand the network of waste biogas plants. Convert plants to biomethane production.
- **Capture most of the methane generated during wastewater treatment** and maximise its use for the production of electricity, heat or biomethane.
- **Strengthen the implementation of circular economy principles** to reduce waste generation.

6. Monitoring, reporting, evaluation and update

International climate agreements, i.e. the United Nations Framework Convention on Climate Change, its Kyoto Protocol and the Paris Agreement, require a uniform, transparent, consistent and verifiable method of national inventory of greenhouse gas emissions and removals. Each party to the UNFCCC, including the Czech Republic, has established a National Inventory System (NIS) that must comply with the rules adopted and agreed upon at UNFCCC meetings.

EU Member States are also bound by the obligations arising from Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action and related EU implementing regulations.

These obligations include the provision of annual reports on greenhouse gas emissions and removals inventories, the preparation and reporting of emissions projections (every two years), Biennial Transparency Reports and National Communications. The reporting rules in this area are based primarily on the enhanced transparency framework for action and support adopted by the 24th Conference of the Parties to the UNFCCC.

Responsibility for the functioning of the NIS lies with the Ministry of the Environment, which has appointed the Czech Hydrometeorological Institute (CHMI) as the organisation responsible for coordinating the preparation of the greenhouse gas emissions and removals inventory, including partial processing of the inventory.

Other obligations arising from the above-mentioned UNFCCC commitments and EU regulations include the preparation of a long-term low-carbon development strategy and the establishment of a national system for policies, measures and projections.

The national system for policies, measures and projections, established in accordance with the relevant rules on 9 July 2015, enshrines the coordinating role of the Ministry of the Environment and the CHMI, the role of NIS sectoral implementers and the involvement of the Interministerial

Working Group on Climate Protection. However, this system needs to be further developed and deepened in order to meet the demanding requirements for consistency and completeness of reported data and information.

Given the time required for the preparation and implementation of individual measures and instruments and the response time, it is necessary to consider the Policy and its settings in the long term, with the assumption of regular evaluation and updating every five years. The time frame of the Policy respects the three basic levels of needs and requirements in the area of greenhouse gas emission reduction, i.e. at national level and in the context of European and international policy.

The evaluation process will also be linked to the cycle of assessing the EU's joint progress in accordance with Regulation (EU) 2021/1119 of the European Parliament and of the Council (EU) 2021/1119, which establishes a framework for achieving climate neutrality ('European climate law') and the cycle of global assessment of the fulfilment of commitments by the Parties to the Paris Agreement.

The evaluation of the Policy itself will focus not only on progress in meeting greenhouse gas emission reduction targets in relation to national, European and international targets, but also on the implementation of individual policies and measures in various sectors. The Platform for Energy and Climate Strategy and the Interministerial Working Group on Climate Protection will also be involved in assessing progress. Basic information on progress in meeting climate protection targets is updated annually in the Report on the State of the Environment in the Czech Republic.

As part of the preparation of the Climate Protection Policy update, an online public consultation was held, in which every citizen of the Czech Republic could participate. Drafts of individual chapters were provided to various stakeholders (non-profit organizations, industry representatives, and ministries) for comment within the framework of the Platform for Energy and Climate Strategy. Consultations on individual emission sectors were also held in the form of expert workshops. Subsequently, a comprehensive draft of the Policy was again provided to Platform members for comments. Future updates to the Policy will also be prepared with the involvement of public.

List of abbreviations

BAT	Best Available Technique
CCUS	Carbon Capture, Utilisation and Storage
CO ₂ eq.	Carbon Dioxide Equivalent
ESG	Environmental, Social, and Governance
ESR	Effort Sharing Regulation
EU	European Union
EU ETS	European Union Emissions Trading System
GDP	Gross Domestic Product
GHG	Greenhouse Gas Emissions
GW	Gigawatt
GWe	Gigawatt-Electric
CHMI	Czech Hydrometeorological Institute
IPPC	Integrated Pollution Prevention and Control
LULUCF	Land Use, Land-Use Change and Forestry
NIS	National Inventory System
PJ	Petajoule
RES	Renewable Energy Source
UNFCCC	United Nations Framework Convention on Climate Change
WAM	With Additional Measures