Climate action in Hungary

Latest state of play

The EU’s binding climate and energy legislation for 2030 requires Member States to adopt national energy and climate plans (NECPs) covering the period 2021 to 2030. In October 2020, the European Commission published an assessment for each NECP. Hungary submitted its NECP in December 2019. A high proportion of Hungarians (60%) expect national governments to tackle climate change.

Hungary accounts for 1.7% of total EU greenhouse gas (GHG) emissions and has reduced its emissions at a slower pace than the EU average since 2005. The carbon intensity of the Hungarian economy decreased by 35% between 2005 and 2019, at a faster rate than the EU-27 average.

Transport emissions increased by just over 19% in the 2005-2019 period in Hungary, bringing their share of total emissions up to over 22%. Reductions are expected as the country proceeds with its electromobility measures. The greatest percentage reduction in emissions between 2005 and 2019 – 37.5% – was made by the energy industries sector. Under the Effort-sharing Decision for the 2013-2020 period, Hungary was allowed to increase its emissions in sectors not included in the EU’s emissions trading system by 10%, compared with 2005 levels, and is on track to achieving that target. Under the Effort-sharing Regulation (2021-2030) Hungary must reduce its emissions by 7% compared with 2005.

The share of renewable energy sources in Hungary reached 12.6% in 2019. The country’s 2030 target of a 21% share is focused mainly on changes to the transport and heating and cooling sectors, where changes to the existing district heating networks are expected.

Emissions and demographics

In 2019, Hungary had close to 9.8 million inhabitants, accounting for nearly 2.2% of total EU-27 population.

In 2019, Hungary’s per capita emissions were below the EU average. Hungary’s per capita level decreased between 2005 and 2013, before then increasing up to 2019. The country was 1.9 tCO₂-equivalent (CO₂e) per capita below the Union’s average in 2019, whereas in 2005 this difference was 3.2 tCO₂e per capita.

According to projections, the Hungarian population is already decreasing, and will remain on that path, in contrast to the predicted EU trend of a decrease starting in 2025 only.

Data source: Eurostat demo_pjan and EEA (GHG trends, GHG estimates, UNFCCC reporting).
Hungary's progress so far

Hungary's total emissions, in 2019, made up 1.7 % of the EU total and had decreased by 16.2 % since 2005. This was below the EU-wide emissions reduction of 19 % in the same period. Net emissions, 59.4 MtCO₂e in 2018, followed the trend set by total emissions in the country, as land use, land-use change and forestry (LULUCF) emissions remained relatively stable from 2005 onwards.

The country, in pursuit of increased carbon sink capacities, and in line with its forest strategy, plans to increase its forest areas and other tree stock. Alongside this, the NECP states that changes in the regulation of forest management partnerships could play an important role in achieving the desired results.

Figure 2 – Total, LULUCF and net greenhouse gas (GHG) emissions (MtCO₂e)

Data source: EEA (GHG trends, GHG estimates, UNFCCC reporting).

The NECP states that the LULUCF sector will continue to be a net sink, but carbon capture will decline. With additional measures proposed, carbon capture should decrease by 63 % while with existing measures carbon capture will decrease by 90 %.

Carbon intensity

In 2019, Hungary was the eighth most carbon-intensive economy in the Union, above the EU average by 201 gCO₂e per euro.

Over the 14-year period, Hungary reduced its emissions intensity per unit of GDP by 35 %, slightly above the EU average reduction of 33 %. The impact of the 2009 financial crisis led to a halt in the downward carbon intensity trend, which lasted for a year. Between 2014 and 2019, the country's carbon intensity fluctuated, with a rise in 2014 followed by a decrease in momentum from 2017. To some extent, the fluctuations in GDP between 2005 and 2019 went side by side with the fluctuations in GHG emissions, evidencing an interconnection between the two.

Figure 3 – Carbon intensity of the economy: GHG emissions (gCO₂e) per unit of GDP (euro in 2015 prices)

Data source: Eurostat Nama_10_gdp [CLV15MEUR] and EEA (GHG trends, GHG estimates, UNFCCC reporting).
Emissions across the economy

Each with a 22 % share of the total, the transport and 'other emissions' (buildings and tertiary) sectors accounted for the largest share of Hungary's GHG emissions in 2019. Emissions from transport rose by just over 19 %, or 2.3 MtCO₂e, in the 2005-2019 period. The plan is for existing subsidies and tax incentives to boost electromobility by 2030. Measures to develop an alternative fuel infrastructure are already in place through a dedicated policy framework. The NECP also mentions the desire to encourage the use and domestic production of second generation biofuels.

The energy industries sector reduced its share of total emissions over the period from 26.3 % to 19.6 %. This translates into a 37.6 % reduction in emissions since 2005, or 7.6 MtCO₂e. The waste management and industrial processes and product use sectors reduced their emissions by 19 % and 23 % respectively, between 2005 and 2019.

Emissions linked to agriculture and the manufacturing and construction industries increased by 16 % and 19 % respectively.

Figure 4 – Total GHG emissions by sector (MtCO₂e) (rounded data)

Data source: EEA (GHG trends, GHG estimates, UNFCCC reporting).

The EU-wide emissions trading system (ETS) covers emissions from electricity generation and industry. Under the proposed measures, total GHG emissions in Hungary are expected to decrease by 7.6 MtCO₂e between 2017 and 2040. The projection shows a decrease of 8 % in the 2017-2030 period and of 17 % between 2017 and 2040. The Renewable Energy Aid Scheme, which was brought in to replace a feed-in tariff, aids both the construction of new electricity generation units and the market integration of renewable energy generation. The NECP mentions the country's intention to further develop its nuclear capacities through a new project – Paks II. Two new nuclear units are to be built in partnership with the Russian Federation, with an installed capacity of 1 200 MW each.

Emissions from the agriculture and industrial processes and product use sectors are expected to increase by 10 % and 10.3 % respectively by 2030 compared with 2017. On the other hand, emissions from the waste sector are expected to decrease by 23 % by 2030 against 2017 levels and by 38 % compared with 2005 levels – mostly through a reduction in landfill. The Commission assessment of the NECP mentions that there is no attempt to address the waste hierarchy or circular economy in this sector.
Effort-sharing sectors

EU effort-sharing legislation covers emissions from sectors not included in the ETS, such as transport, buildings, agriculture and waste. The Effort-sharing Decision (ESD) for the 2013-2020 period allowed Hungary to increase its non-ETS GHG emissions by 10 %, compared with 2005. Since the beginning of the ESD period, Hungary has always remained below its allocated emissions target, increasing emissions by 13 % in ESD period, coming close to 2005 levels. For the 2021-2030 Effort-sharing Regulation (ESR) period, Hungary must reduce its emissions by 7 % compared with 2005 levels. The Commission’s assessment of the NECP states that Hungary may exceed its 2030 target by 15.7 percentage points if all proposed policies and measures are put into place. The assessment also highlights that under existing measures the target would be missed by 7 percentage points.

Figure 5 – Hungary’s emissions under Effort-sharing Decision/Regulation (MtCO₂e)

Data source: Commission ESD allocation, EUR-Lex and EEA, figures display rounded data.

According to the NECP, agriculture-related GHG emissions have been rising since 2011 mostly on account of the increased use of fertilisers, a growing bovine population and higher dairy production per cow. The NECP predicts that the sector’s emissions in 2030 will be 10 % higher than in 2017. The Commission’s assessment points to the lack of measures to support Hungary’s intention to reduce emissions from agriculture, given the projected increase under existing measures.

Emissions reductions in the transport sector are to be achieved through an increased proportion of electric motor vehicles in the country’s fleet, a higher blending ratio of biofuels and the promotion of low-emission transport. By 2030, advanced biofuels will represent 53 % of renewable energy in the transport sector: the share of electricity will be 21 %, and that of hydrogen should become significant by the late 2020s. In the buildings sector, from 2021, nearly zero-energy buildings will benefit from a scheme and a regulation setting minimum performance requirements.

The average emissions of new passenger cars were below the EU-wide target ceiling of 130 gCO₂/km from 2015 to 2018, while remaining above the EU average since 2008. Furthermore, with numbers rising since 2016, Hungary remains a considerable distance from the new 2021 EU-wide target ceiling of 95 gCO₂/km.

Figure 6 – Average emissions: New passenger cars (g CO₂/km)

Data source: EEA and Eurostat sdg_12_30.
Energy transition

Renewable energy

Hungary increased its renewable energy share of gross final energy consumption by 5.7 percentage points between 2005 and 2019. To meet the 2030 target, the renewable energy share of gross energy consumption must rise from 12.6% to 21% in just over a decade. In its assessment of Hungary’s NECP, the Commission finds the indicative target of 21% renewable energy (RE) in the energy mix to be unambitious, as it is 2 percentage points below the result obtained from the Governance Regulation calculation.

Figure 7 – Renewable energy share of gross final energy consumption

Data source: Eurostat (shares tool), NECP 2030 targets and EEA.

In order to reach the 2030 target, Hungary has set objectives for the minimum renewable energy share in various sectors: 20% of gross final electricity consumption, 30% in heating and cooling and 14% in transport. Measures include the development of existing district heating networks.

Energy efficiency

The European Commission has assessed Hungary’s 2030 primary and final energy consumption targets as very low in ambition, in comparison with the EU-27 level of effort. Hungary justifies its choice of targets by the country’s current economic and budgetary conditions.

The final NECP focuses on measures to address the issue predominantly through the buildings sector. One of the key measures is the introduction of an energy efficiency obligation scheme.

Figure 8 – Energy efficiency: primary and final energy consumption (Mtoe)

Data source: Eurostat nrg_bal_s, NECP 2020 + 2030 targets and EEA.
Outlook: Plans and policies

The objective of Hungary's green district heating programme is to replace natural gas with renewable energy sources for the heating market and supply individually heated buildings. In April 2021, the construction of the country's first large-scale geothermal project was announced. This will be developed by Arctic Green Energy and FŐTÁV – Budapest's district heating company. A single facility of 20 MW has the potential to cut CO₂ emissions by 14 to 21 thousand tonnes per year. FŐTÁV's long-term vision is to achieve geothermal heating capacity of 150-200 MW.

Currently in operation, the Paks nuclear power plant consists of four 500 MW units, currently responsible for more than half of the country's electricity production. This power plant began operating between 2006 and 2009 and is expected to be decommissioned between 2032 and 2037. On the same site, the new Paks II project will strengthen the nuclear power plant's position as lead power producer as it aims to substitute the 2000 MW installed capacity with two 1200 MW units. The construction phase of the project is expected to begin in 2022. While developing nuclear power, the country also plans to develop a 200 MW solar farm and a 500 MW natural gas plant.

Aiming to tackle emissions from the transport sector, at the end of 2020 Hungary launched a 'green bus' programme. The idea is to replace half the Hungarian public bus fleet with low and zero-emissions vehicles. The first stage will apply to cities with a population of over 25,000. The budget for the entire programme is €100 million. The programme is already up and running in the city of Debrecen, where residents were given the opportunity to use the fully electric buses free of charge for one month. In subsequent phases of the programme, the state will offer cities financial support to purchase the new vehicles.

MAIN REFERENCES

Hungary Ministry of Innovation and Technology, National energy and climate plan, December 2019.
European Commission, Assessment of the final national energy and climate plan of Hungary, SWD(2020) 916 final.