

Climate action in Denmark

Latest state of play

The EU's binding climate and energy targets for 2030 require Member States to adopt [national energy and climate plans](#) (NECPs) for the 2021-2030 period. In October 2020, the European Commission published an [assessment](#) of each NECP. A high proportion of Danes ([72 %](#)) expect national governments to tackle climate change.

Denmark submitted its [NECP](#) in December 2019. The country accounts for 1.6 % of the EU's net greenhouse gas (GHG) emissions. Between 2005 and 2018, it achieved a net emissions reduction of 23 %, performing better than the EU as a whole. In addition, the carbon intensity of the Danish economy was below the EU average, and decreased more rapidly. In 2019, the country's emissions were concentrated in three sectors – transport, energy and agriculture – amounting to 69 % of total emissions. Developments in the energy sector were particularly notable and serve to explain two-thirds of the reduction in total emissions accomplished since 2005. Regarding emissions under the Effort-sharing Regulation, the emissions reduction target for Denmark has risen from 20 % for 2020 to 39 % by 2030 (compared to 2005). After reaching the 30 % share of renewables target well in advance of 2020, a 55 % target has been set for 2030. In 2019, the 2020 targets relating to energy efficiency had still not been met, and the level of ambition in those areas for 2030 has been revised downwards.

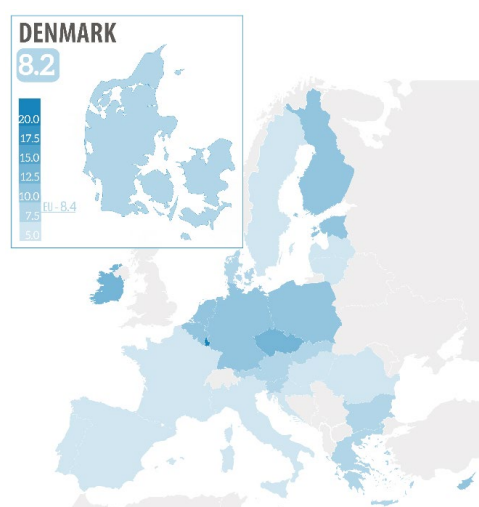
Emissions and demographics

In 2019, Denmark's [population](#) was around 5.8 million inhabitants, representing 1.3 % of the total EU population.

As shown in Figure 1, in 2019 each Danish citizen emitted an average of 8.2 tonnes of CO₂e, slightly under the EU average of 8.4 tonnes. Emissions per capita in Denmark have decreased by 36 % since 2005.

Given the [population growth](#) projected for the coming decades, and the country's commitment to reducing greenhouse gas (GHG) emissions, this indicator is expected to decline further.

Figure 1 – Total greenhouse gas emissions (tCO₂e) per inhabitant



Source: EPRS production using EEA data.

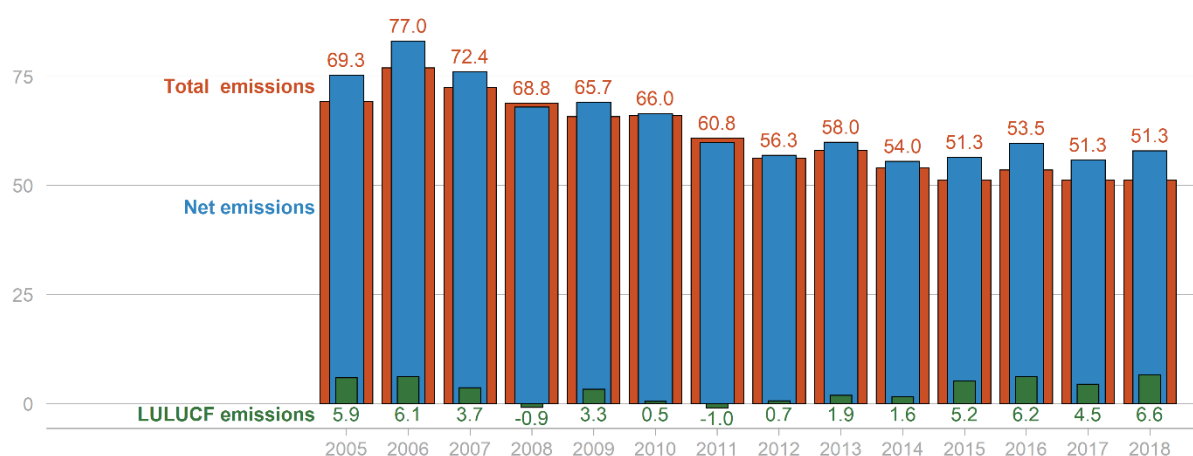
This briefing is one in a series which will cover all EU Member States.

Denmark's progress so far

Net GHG emissions in Denmark in 2018 amounted to 57.9 million tonnes of CO₂e, which constitutes about 1.6 % of the total net emissions of the EU. Since 2005, the country has accomplished a 23 % reduction in net emissions, exceeding the EU's achievement of 16.2 %. According to the [Danish government](#), this has been mainly due to energy sector developments, and in particular the decrease in the carbon intensity of the energy mix.

As seen in Figure 2, the land use, land use change and forestry (LULUCF) sector was a net source of emissions during most of the period, while in the EU overall, it acted as a net carbon sink. According to the [Danish Energy Agency](#), Danish forests accumulate around 170 million tonnes of CO₂ annually, removing carbon during most of the period covered by the figure. However, removals by forests were offset by emissions from soils in croplands and grasslands.

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



Source: EPRS production using EEA data

In its NECP, Denmark has committed to ensuring that from 2021 LULUCF emissions would not exceed removals, and plans to finance afforestation and restoration of carbon-rich farmland. In addition to enhancing natural carbon sinks, the government has decided to invest significantly in carbon capture and storage as a critical technology on the path towards climate neutrality.

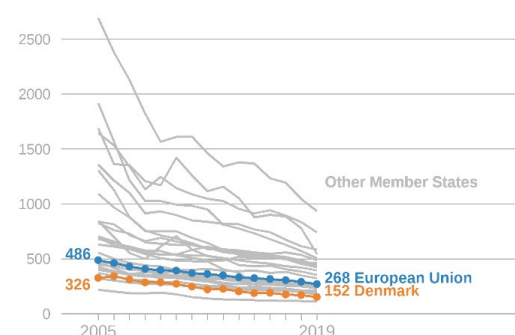
Emissions intensity

Figure 3 shows that the carbon intensity of the Danish economy is 43 % below the EU average, one of the lowest of all the Member States.

A decreasing trend characterised the period from 2005 to 2019. Denmark halved its emissions per euro of GDP (53.3 % reduction) while the figure for the EU as a whole declined by 44.8 %. During the same period, the Danish economy [grew](#) while emission fell.

The Danish government regards this decoupling as a precondition for meeting the targets and expects the trend to continue in the coming years.

Figure 3 – Carbon intensity of the economy: GHG emissions (gCO₂e) by GDP (euro)



Source: EPRS production using data from Eurostat (Nama_10_gdp), EEA.

Emissions across the economy

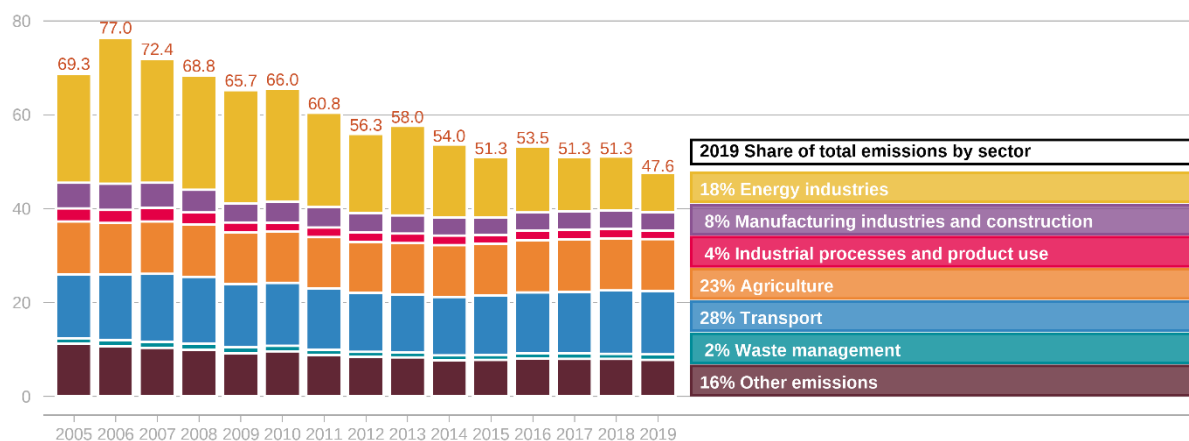
As shown in Figure 4, in 2019, the transport sector accounted for the largest share of Denmark's emissions. Since 2005, transport emissions have decreased by only 0.2%, bringing the sector's share of total emissions from 20% to 28%. Agriculture, another large emitter, is responsible for 23% of Denmark's emissions. Between 2005 and 2019, this sector's emissions fell by only 2% and its share of Denmark's emissions rose by 7 percentage points (p.p.).

Energy industries are also responsible for a large share of emissions (18%). This sector's emissions have more than halved since 2005 (from 63.9%), reducing the sector's share by 16 p.p. Energy industry achievements have contributed considerably to the total emissions reduction. Specifically, they accounted for 21 p.p. out of the 31.3% total reduction. The manufacturing and construction sector contributed 2 p.p. to the total reduction – by cutting its emissions by 28.9%.



Denmark is strongly supporting the transition to renewable energy and has decided to [phase out](#) fossil fuels by 2050.

Figure 4 - Total greenhouse gas (GHG) emissions by sector (MtCO₂e)



Source: EPRS production based on EEA data.

By means of the [agreement](#) for energy and industry, and the waste strategy, the Danish government expects to cut emissions by 3.4 million tonnes of CO₂e by 2030. The former covers the transport sector, making funding available to lessen the tax burden on electric vehicles, extend the charging point network, accelerate transition to green buses and ferries, and promote cycling. Additionally, it includes incentives to boost solar and wind energy production, investments in carbon capture and use/storage and large-scale [Power to X](#) plants, subsidies for electrification and energy efficiency improvements in industry and buildings, lower taxes on green electricity for heating and surplus heat, and a green tax reform proposal. The [waste strategy](#) is aiming for a climate-neutral waste sector by 2030.

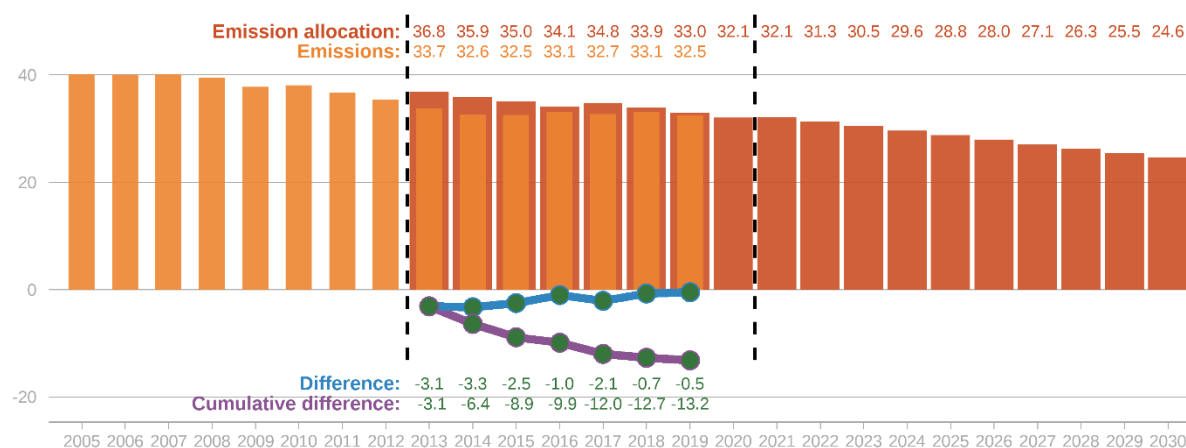
Concerning agriculture, plans to reduce nitrogen losses and ban fertilisation and conversion in certain areas could result in an annual reduction of 90 000 tonnes of CO₂e by 2030. Further reductions might be made possible by ongoing research covering the use of biochar and feed additives.

Effort-sharing achievements

Under the Effort-sharing Decision (ESD), Denmark had a [binding target](#) to reduce non-ETS emissions by 20 % by 2020 (compared with 2005). To achieve the target, annual emissions allocations were determined, as shown in Figure 5. Denmark's emissions remained below allocation levels every year. An 18.9 % reduction was reached in 2019.

For the 2021-2030 period, Denmark has committed to a 39 % reduction (compared with 2005), and will aim not to exceed the annual allocations. However, the [European Commission](#) has highlighted that the Danish NECP lacks a clear strategy to achieve this target, and estimates that under the policies adopted by 2019, the 2030 target would be missed by 13 p.p.

Figure 5 – Denmark's emissions under Effort-sharing Decision/Regulation (ESD/ESR) (MtCO₂e) (rounded data)



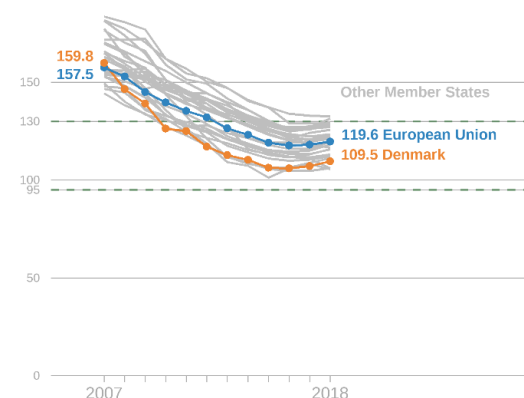
Source: EPRS production using data from the European Environment Agency (2020).

The sectorial strategies mentioned above for transport, energy and waste, adopted in 2020, and the upcoming plan related to agriculture, are expected to increase the feasibility of meeting the 2030 target. Furthermore, if necessary, Denmark could apply the flexibility mechanism to use LULUCF or ETS credits to comply with the established target. However, it is not stated in the NECP if Denmark intends to do so.

GHG emissions from passenger cars are responsible for 60 % of transport sector emissions in the country.

As Figure 6 depicts, emissions from new passenger cars in Denmark were close to the EU average in 2007, but experienced sharp reductions between 2007 and 2018, positioning the country below the EU average. In 2018, Denmark was among the Member States with the lowest emissions from new passenger cars, 8.4 % below the EU average. The EU-wide target of 130g/km set for 2015 was met five years in advance. To meet the new target of 95g/km from 2021, a reduction of 13 % from 2018 levels is needed. Relevant measures for further improvements in this context include the decision to stop selling cars running exclusively on fossils fuel by 2030, and the upcoming [tax reform](#) to incentivise sale of low emission and electric vehicles.

Figure 6 - Average emissions from new passenger cars (gCO₂/km)



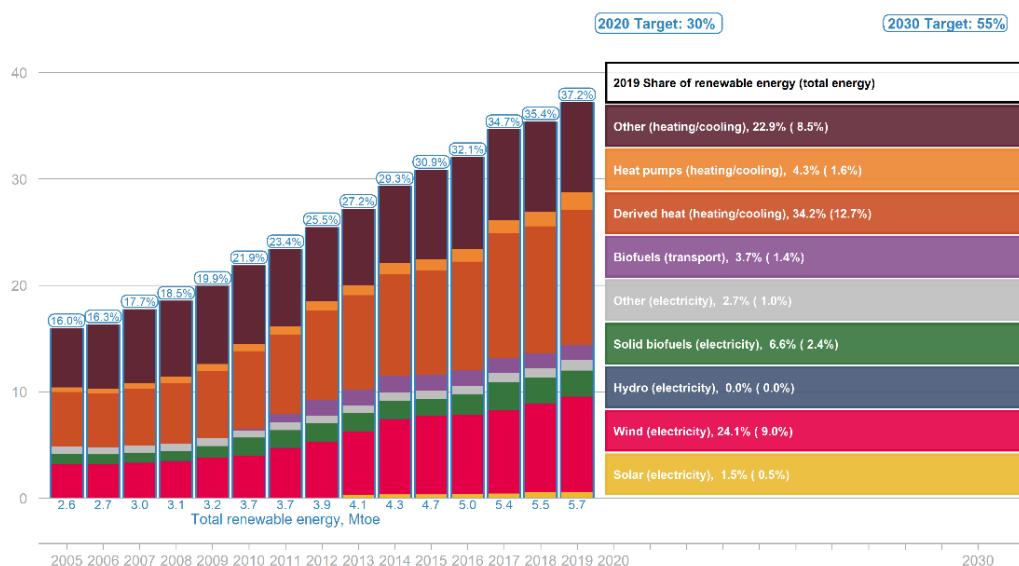
Source: EPRS production using data from Eurostat, EEA.

Energy transition

Renewable energy

As Figure 7 illustrates, in 2019, the renewable energy share (RES) was 37.2 %, i.e. more than 7 p.p. above Denmark's 2020 target. Between 2005 and 2019, Denmark's RES expanded more than that of any other EU country, by a total of 21 p.p. The main contributing factors were wind and [derived heat](#). According to the NECP, the renewables share is estimated to reach 41 % in 2020. The 2030 target is set at 55 %, which in the Commission's opinion is a sufficiently ambitious target.

Figure 7 – Share of renewable energy of total energy consumption



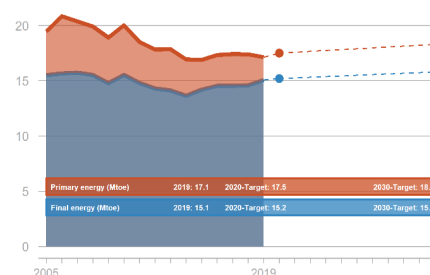
Source: EPRS production using Eurostat (shares tool) and EEA data.

Among the measures proposed are the construction of two energy islands for offshore wind production and the expansion of the capacity of an existing windfarm. Together, these two initiatives are expected to increase Denmark's current wind capacity by a factor of more than three. Other measures include incentives for market-driven expansion of solar and onshore wind power, subsidies for biogas and other green gases, exemption of self-consumption from electricity tax, and economic incentives for biomass utilisation.

Energy efficiency

In 2019, primary energy consumption was 2.1 % below the 2020 efficiency target of 17.5 Mtoe, while final energy consumption was 0.8 % below the target of 15.2 Mtoe. The NECP explains that consumption, particularly of final energy, is anticipated to increase from 2020 due to the installation of major new datacentres. Given that Denmark set its targets in line with consumption projections, the 2030 targets are of very low ambition, 18.3 and 15.8 Mtoe, for primary and final energy, respectively. However, the NECP states that initiatives to be launched after 2019, will render a better performance than the 2030 targets set.

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



Source: EPRS production using data from Eurostat and EEA (Trends and projections 2019).

Outlook: Plans and policies

The [Climate Act](#), approved by the Danish Parliament in June 2020, sets legally binding targets of a 70 % reduction in GHG emissions by 2030 (compared with 1990) and climate neutrality by 2050 at the latest. In addition, the government must set sub-targets every five years. For 2025, experts recommend a reduction target of between 50 and 54 %.

A climate action plan, consisting of separate sectoral strategies, is currently under development. In 2020, most of the strategies were already agreed, such as the strategies for energy and industry, waste, road transport, green public procurement, sustainable construction and green research. Furthermore, a comprehensive green tax reform has been proposed. In 2021, further agreements are expected, including the sector strategy for agriculture and forestry.

MAIN REFERENCES

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