

## 【欧州】 【Common】

# Common - Environmental Issues: The EEA's trends and projections for GHG emissions in 2020 with a focus on GHG emissions from transport

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### 【概要 : Summary】

In the year 2020, when the COVID-19 pandemic also hit Europe, the EU saw remarkable progress towards meeting its 2020 climate and energy targets. As the European Environment Agency (EEA) report on the annual trends and projections in Europe in 2021 (No.13/2021) underlines, a substantial progress was made in reducing the GHG emissions in 2020. The Europe's 20-20-20 goals for climate change mitigation, renewable energy deployment and energy efficiency have been achieved. The EEA Report No. 13/2021 also shows progress toward achieving the EU Green Deal's climate neutrality target in 2050.

However, besides these promising results, it must be kept in mind that the year 2020 also saw a strong reduction of all economic and passenger transport activities due to partial or complete lockdowns during the COVID-19 pandemic. Accordingly, the COVID-19 pandemic related lockdown measures have helped to achieve the general GHG emission reduction targets of 2020, as well as the envisaged target for the share of renewable energy in the transport sector. However, to achieve the goals of the 2015 Paris Agreement as well as the climate neutrality and net-zero GHG emissions target under the European Green Deal by 2050, the EU still must significantly

reduce its GHG emissions. As the EEA projections suggest, it will be unavoidable to take additional GHG emission reduction measures to further increase the use of renewable energies, and to achieve the GHG emission reduction target of 2030, as the beneficial impact of the pandemic on GHG emission levels will fade with the transport activities starting to grow again in the post-pandemic era.

### 【記事 : Article】

#### 1. The EU's key policies to climate and energy targets

The EU and its Member States committed to reduce their GHG emissions to fulfil their commitments under the 2015 Paris Agreement. Furthermore, the EU intends to achieve climate neutrality and net-zero GHG emissions by 2050, based on the European Green Deal of December 2019 (COM (2019) 640 final). To achieve these goals, the EU must significantly reduce its GHG emissions, and in the transport and energy sector, while reducing the dependence on imports of fossil fuels.

To achieve the net-zero carbon emission objective, the European Climate Law of March 2020 was amended by setting a new 2030 mid-term GHG emission reduction target of 55%, compared to 1990 levels, a significant increase from the previously set

40% GHG emissions reduction target (COM(2020)563, European Commission (2020)).

In 2008, the Council of the European Union agreed on the legislative proposals concerning CO<sub>2</sub> emissions and fuel quality and the Renewables Directive (Council of the European Union 2009). The EU climate and energy (CARE) Package targets, known as the “20-20-20” targets, were set as the three key objectives for 2020. It includes a 20% reduction in EU GHG emissions from 1990 levels, raising the share of EU energy consumption produced from renewable resources to 20%, and improving the EU’s energy efficiency by 20% by 2020 (EEA n.y.).

The EU 2020 Climate and Energy Package, adopted in 2009, set a legislative framework to achieve the 20% GHG emissions reduction objective, including a 21% reduction in emissions covered under the EU-ETS, compared with 2005 levels, to be achieved across the whole EU; and an effort to reduce emissions not covered by the EU-ETS by about 10% compared with 2005 levels, shared between EU Member States under differentiated annual national GHG targets under the Effort Sharing Decision (ESD), (Decision No 406/2009/EC, EEA 2021c).

Regarding the RED I (Directive 2009/28/EC) and its recast RED II (Directive (EU) 2018/2001), the original Directive 2009/28/EC on the promotion of the use of energy from renewable sources (RED I) established a policy for the production and promotion of energy from renewable sources in the EU. It required all EU Member States to ensure that by 2020, at least 10% of fuels in the transport sector come from renewable sources. The RED also established sustainability criteria for biofuels, which must be fulfilled to be considered in the target (EEA 2021e). In 2018, the recast Renewable Energy Directive 2018/2001/EU RED II (Directive (EU) 2018/2001) (RED II) was adopted. It extends the legal framework to 2030, setting new targets for the share of energy coming from renewable sources in

transport (EEA 2021e). The RED I specifies national renewable energy targets for 2020 for each country (DIRECTIVE 2009/28/EC). Based on individual national targets of each EU Member State, set as specified national renewable energy targets for 2020, the RED I required the EU to cover at least 20% of its total energy needs with renewables by 2020, distributed between the EU Member States based on individual National Renewable Energy Action Plans (NREAPs).

Regarding the use of renewables in the transport sector, all EU Member States had to ensure that at least 10% of their transport fuels come from renewable sources by 2020. The share of energy from renewable sources used in transport activities in the EU-27 reached 8.9% in 2019.

In December 2018, the revised RED II Directive (2018/2001/EU) entered into force, including a new binding renewable energy target of at least 32% for the EU for the year 2030. The RED II also includes a transport sub-target, which requires the EU Member States and the fuel suppliers to supply a minimum of 14% of the energy consumed in road and rail transport by 2030 as renewable energy. Biofuels used in transport must comply with the RED II’s sustainability and GHG emission criteria to be counted towards the overall 14% renewable energy target. The RED II sets also a limit on biofuels, which risk high indirect land use change (ILUC)-risk, bio liquids and biomass fuels.

Meanwhile, the EU reviewed the RED II and presented a proposal to amend the RED II Directive (EU) 2018/2001 (COM(2021) 557 final) to bring it in line with the European Green Deal’s net-zero GHG emissions reduction target of 2050 (European Commission 2021a).

## 2. The 2020 EEA report’s findings on reaching the 20-20-20 targets

According to the European Environment Agency (EEA) report “Trends and projections in Europe 2020. Tracking progress towards Europe’s climate

and energy targets” (EEA 2020), the EU seemed to be on track to reach its “20-20-20” targets, although the pace of increasing the renewable energy’s share in the energy mix slowed down since 2014. According to Eurostat, the share of renewables in gross final energy consumption stood at 19.7% in the EU-27 in 2019, only 0.3% away from the 2020 target of 20% (Eurostat 2020, EEA 2020). In 2020 it is expected that the EU-27 will achieve a total share of renewables of 21.3%, thus achieving the set 2020 target of a minimum 20% renewable energy share.

Regarding the transport sector, the Eurostat results showed an average share of renewable energies of the total energy consumption in transport of 8.9% in 2019, which was still quite distant from the envisaged 2020 target of 10% renewable energy. According to EEA’s preliminary estimates, the renewable energy proportion represented 8.4% in 2019, which is nearly 2 percentage points under the 10% target of the RED I share target of renewable energy (EEA 2020).

Furthermore, GHG emissions from installations under the EU-ETS were estimated to have decreased by 9.1% in 2019, compared to 2018, the EU’s transport sector’s GHG emissions increased in 2019 by 0.8% (not including shipping), compared to 2018 (EEA 2020). GHG emissions in the transport sector increased due to higher demand and despite climate policies and efforts to improve vehicles efficiency. Projections indicate that transport emissions will have increased by 32% by 2030, compared with 1990 levels, if no further reduction measures are taken (EEA 2020).

If the additional measures planned in national policies are considered in the projections for 2030, GHG emissions in transport will increase by 17% from 1990 levels. Consequently, all transport sub-sectors will need to reach more ambitious targets, for the sector to contribute to the goals set out in the European Green Deal (EEA 2020).

In particular, the use of renewable energy sources needs to be accelerated in the transport

sector, as it is the most effective tool to reduce the sector’s GHG emissions and its dependence on imported fossil fuels.

### 3. The EEA’s 2021 general trends and projections on GHG emissions

After the EU increased its GHG emission reduction target from at least 40% below 1990 levels by 2030 to at least 55% below 1990 levels by 2030 in its European Climate Law amendments, all pieces of climate legislation will be updated under the “Fit for 55” package on 14 July 2021 (EEA 2021c, European Commission n.y.).

According to EEA’s Trends and projections in Europe 2021, GHG emissions in the EU decreased by 31% between 1990 and 2020, which exceeds the EU’s 2020 target by 11 percentage points (EEA 2021a, EEA 2021c). This overshoot was propelled by steep emission cuts in 2019 and in the pandemic year 2020. In fact, the sharp decrease of GHG emissions in the EU of 10% from 2019 to 2020 can be expected to be strongly related to the COVID-19 pandemic, but the actual magnitude of this effect is uncertain, in comparison with the role of climate policies. In fact, the EU GHG emissions already fell by 4% from 2018 to 2019, strongly driven by fossil fuel price effects and policy measures (EEA 2021f).

However, the results of individual EU Member States show that only 21 Member States reached their national target in 2020, based on preliminary data (EEA 2021f). Accordingly, Bulgaria, Cyprus, Finland, Germany, Ireland, and Malta did not meet their targets and need to buy emission quotas to comply with their legal objectives. Furthermore, Member States have not yet realigned their ambitions to the new net 55% reduction target for 2030 (EEA 2021c).

In contrast, due to decreased activity during the COVID-19 pandemic, the preliminary estimates for the year 2020 indicate a substantial decrease of the GHG emissions in the transport sector. This can at least partially be attributed to the

reduction in economic activity in the COVID-19 pandemic. Stationary EU-ETS GHG emissions in the EU-27 demonstrated an extraordinary 1-year reduction of 12%.

The total decline of GHG emissions reached a 41% decrease below the baseline levels of 2005. The most notable emission reductions have been in the sectors covered by the EU-ETS, which includes large installations and the power sector, in particular. However, there are more varied developments observed in the sectors covered by the national emissions targets, including transport, buildings, and agriculture. These sectors have demonstrated a much slower GHG emission reduction pace (EEA 2021a).

Regarding renewable energy shares, the latest EEA report “Trends and projections in Europe 2021” suggests that the EU has achieved its 2020 target of a minimum 20% renewable energy share (EEA 2021a). The overall positive progress is mainly due to the increased use of renewables for electricity, heating, and cooling. While the use of renewables in transport is increasing more slowly, EEA’s preliminary data indicates that the EU narrowly achieved the 10% target of renewable energy use in the sector (EEA 2021f).

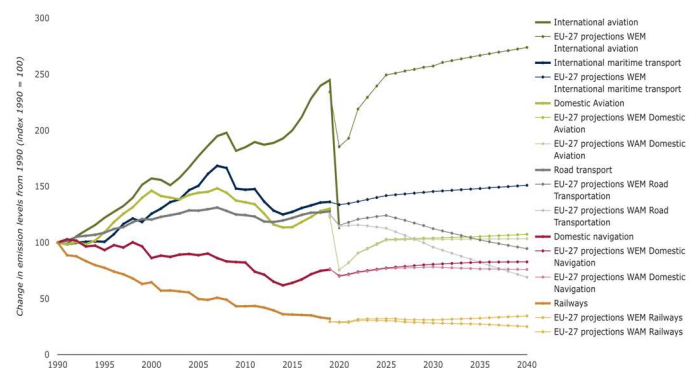
#### 4. The EEA’s 2021 trends and projections for the transport sector in 2020

The transport sector is the second largest source of emissions in the EU-27 and its GHG emissions are almost completely covered by national emissions targets. The GHG emissions from the EU’s transport sector increased steadily between 2013 and 2019, a trend that diverges significantly from those in other sectors during that period (EEA 2021b).

According to the EEA’s report “Trends and projections in Europe 2020. Tracking progress towards Europe’s climate and energy targets”, GHG emissions in the transport sector have increased, due to higher demand and despite climate policies and efforts to improve vehicles

efficiency (EEA 2020). The EU’s transport sector’s GHG emissions increased in 2019 by 0.8% (not including shipping), compared to 2018. Projections indicate that transport emissions will increase by 32% by 2030, compared with 1990 levels. However, according to the EEA’s latest report “Trends and projections in Europe 2021”, in 2020, due to the COVID-19 pandemic related restrictions of the free movement of people and the decrease in transport activities in the entire EU and beyond, preliminary estimates show a significant drop of GHG emissions by -12.7% in 2020 (EEA 2021b).

Figure 1: GHG emissions from transport in the EU, by transport mode and scenario (EEA 2021b)



WEM: with existing measures

WAM: with additional measures

Source: <https://www.eea.europa.eu/data-and-maps/indicators/transport-emissions-of-greenhouse-gases-7/assessment-2>,  
<https://www.eea.europa.eu/ims/greenhouse-gas-emissions-from-transport>

The EEA’s analysis in Report No.13/2021 is based on final climate and energy data for 2019, and preliminary data for 2020 (EEA 2021a, EEA 2021f). In 2020, the transport sector’s estimated emissions show a decrease of 14% compared with 2005, mainly due to the decreased transport activities in 2020 (EEA 2021a). For comparison, in the years following the economic crisis in 2009 ago, GHG emissions only decreased by -1% to -3% per year (EEA 2021b).

Figure 1 shows the trend in GHG emissions by sub-sector since 1990 and projections up to 2040 including existing measures and additional measures. However, the positive development and trend in the transport sector's GHG emissions in 2020 under pandemic conditions can only be sustained if many additional measures are taken. The emission reduction in 2020 was mainly related to lower passenger aviation and road transport activity due to the COVID-19 pandemic situation (EEA 2021a). International aviation emissions were 54% lower in 2020 than in 2019. However, the decrease of emissions due to the pandemic is likely to be temporary and air traffic activity is projected to rise again from 2021. The number of flights is expected to return to 2019 levels by 2024 at the earliest. National projections compiled by the EEA indicate that even with measures currently planned in the EU Member States, domestic transport emissions will only drop below their 1990 level in 2029 (EEA 2021b). International transport emissions with aviation and maritime transport are projected to continue to increase (EEA 2021b). Without the implementation of additional measures, an increase could be observed until 2025, and the reduction expected thereafter would still leave transport emissions in 2030 about 10% above 1990 levels. In fact, until 2019, the increasing transport demand could not be outweighed by the increasing efficiency of vehicles. As a result, transport emissions in 2019 closely resembled those observed in 2005 and there was an increase in CO<sub>2</sub> emissions from new passenger cars between 2017 and 2019 due to the growth in the number of sport utility vehicles (EEA 2021a). If EU Member States implement the additional measures planned to reduce the transport sector's GHG emissions, these would peak in 2022 and be reduced thereafter. In 2030, GHG emissions would then reach a level of 6% below 1990 levels. Most planned policies and measures in the transport sector focus on promoting low-carbon

fuels or electric cars, as well as encouraging a modal shift to public transport. Therefore, considering that the lower transport volumes under pandemic conditions were an exception and that only limited overall GHG emission reductions have been observed in the transport sector over the past 15 years, considerable additional efforts will be necessary to make the transport sector adequately contribute to the envisaged EU's emission reductions by 2030 and the EU Green Deal's net-zero emission target in 2050 (EEA 2021a). Therefore, the European Commission proposed more stringent GHG emissions reduction targets for cars and vans that would require, that average emissions from new cars fall by 55% by 2030 (compared with 2021 levels) (EEA 2021a). Road transport constitutes the highest proportion of overall GHG emissions in transport and in 2019, it emitted 72% of all domestic and international transport GHG (EEA 2021a). The European Commission plans all newly registered cars in the EU to be zero-emission vehicles as of 2035 (EEA 2021a). As a majority of existing and planned measures in the Member States focus on road transport, this share is expected to decrease as road transport decarbonises faster than other transport modes. However, the largest increases in GHG emissions up to the year 2030 are projected in the aviation sector, followed by international maritime transport. These sub-sectors are not prioritised by national policies and not easy to decarbonise. For international aviation, the GHG emissions grew by 38% between 2005 and 2019 and they are projected to increase further, although this sector has been hard hit by the COVID-19 pandemic. In 2020, the GHG emissions from international aviation are estimated to have fallen substantially, even far below the level in 2005, due to the pandemic's impact (EEA 2021a). However, projections show a further increase of GHG emissions from international aviation of 42%

between 2020 and 2030 levels. While GHG emissions from domestic and international flights between airports within the European Economic Area are covered under the EU-ETS, the GHG emissions from international flights increased in all Member States between 2005 and 2019 (EEA 2021a).

Regarding shipping related international GHG emissions, they fell by 10% between 2005 and 2019, but the emission level is still considerably above the 1990 level. Furthermore, the projected GHG emissions from this sector are estimated to still increase by 8% with existing measures up until 2030 compared with the projected 2020 level, and only a small reduction of 1% will be achieved with additional measures, according to the projections (EEA 2021a).

National projections indicate that a significant rebound in transport GHG emissions will take place after 2020 without the implementation of additional measures. A reduction is only expected after 2025, which would leave transport emissions in 2030 around 10% above 1990 levels. Projections show that GHG emission reductions will only be possible if additional policies and measures that go beyond of those currently in place will be implemented. With these additional measures, GHG emissions from transport in 2030 could fall to 14% below projected 2020 levels. Therefore, to achieve more GHG emission reductions towards the 2030 and 2050 targets, the European Commission has proposed to introduce more targets under its “Fit for 55” package of measures (EEA 2021a).

## 5. Utilisation of renewable energy sources

Regarding the utilisation of renewable energy sources in the transport sector, according to preliminary estimates, these accounted for 10.1% of the transport sector’s gross final energy consumption in 2020, which is finally very close to the 10% target that had to be achieved in 2020 for this sector. The share of energy from renewable sources used for transport in the EU increased from under 2% in 2005 to 8.9% in 2019.

However, only because of the strong decrease in transport activities during the COVID-19 pandemic in 2020, the share of renewable energy sources strongly increased between 2019 and 2020 (EEA 2021a). EEA suggests that this share further increased to 10.1% in 2020, although there is an element of uncertainty of preliminary estimates and only the final statistics may reveal if the target was narrowly missed or achieved. The increase was mainly the result of an expansion in the use of biofuels across Europe between 2011 and 2019 (EEA 2021e). However, EEA preliminary estimates also show that this target was achieved by less than half of the EU Member States (EEA 2021d).

The electrification of road and rail transport has played a small role in the progress made so far. In 2018, the RED recast strengthened the sustainability criteria for bioenergy and set a new goal for 2030, increasing the target for the share of renewable energy to be used in transport to 14%. However, the extent of progress varies among Member States and according to EEA, and only 12 EU Member States including Sweden, Finland, Netherlands, Austria, Luxembourg, Belgium, Hungary, Portugal, Italy, Malta, Slovenia, and Ireland appear to have achieved the 2020 target of 10%. Germany and France were very close (EEA 2021e). Mainly Sweden (29%) and Finland (21%) made a strong progress with a high share of renewable energy used in transport in 2020, which contributed to these countries’ emission reductions of 26% and 19%, respectively, between 2005 and 2020 (EEA 2021a).

At the same time, transport emissions increased by 76% in Poland between 2005 and 2020, as emissions from cars, heavy-duty trucks and buses increased. However, the increase in the use of blended biofuels and electromobility have also proven to be important for reducing the GHG emissions and for increasing the share in the use of renewable energy in transport. At the same time, reliance on biofuels and electromobility

also puts pressure on agriculture, energy supply sectors, land use, land use change and forestry (LULUCF) (EEA 2021a).

## 6. Conclusion

According to the latest assessment by the EEA, the EU has achieved its three main climate and energy targets in 2020. The EU markedly surpassed its 2020 GHG emissions reduction target of 20%, as emission in the EU Member States were 31% lower in 2020 than they were in 1990. Thereby, the reduction reached in 2020 exceeded the EU's climate target by 11 percentage points.

While the remarkable reduction of 4% achieved in 2019 was strongly driven by policy measures such as the substitution of coal by gas and renewable energy sources for power generation, the circumstances in 2020 were much different, as the 2020 result was mainly earned by the impact of the COVID-19 pandemic. However, despite the successful GHG emission reduction in 2020, it is unavoidable to accept that additional measures will have to be introduced to achieve the 2030 and 2050 targets.

Regarding the GHG emission in the transport sector, they significantly decreased in 2020, as a direct effect of the lockdown measures during the COVID-19 pandemic. Transport activities dropped by 12.7% in 2020 compared to 2019. However, the EEA estimates that without the implementation of additional measures, the GHG emissions in the transport sector will rebound and will increase until 2025. Only thereafter, a reduction could be expected, but the transport sector's GHG emissions would still be around 10% above 1990 levels in 2030. If EU Member States implemented additional measures planned to reduce transport emissions, these could peak in 2022, and be reduced thereafter, making it possible to reach GHG emission levels of 6% below 1990 levels by 2030. The main message of the EEA results and projections is that the 2030 target of a 55% reduction in net GHG emissions can be reached

only if additional efforts are made and new policies are adopted and implemented. Also, the 2050 climate neutrality target will require more additional GHG emission reduction measures, most importantly in the transport sector.

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