【欧州】【航空】

Aviation – Gas emissions: EU's preliminary 2018 EU-ETS data underlines airlines' increasing importance as CO2 emitters

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【概要：Summary】

In 2005, the EU emissions trading scheme (EU-ETS) was launched as the world's first emission trading scheme and centre piece of the EU's policy to tackle climate change and reduce GHG emissions from the EU's industry in a cost-effective way. Until today, it remains the biggest international emissions trading system. In the beginning, aviation had not been in the focus of the climate change debate, as aviation and shipping were excluded from the Kyoto and Paris agreements. However, international aviation's CO2 emissions are expected to grow significantly over the next 30 years. Since 2012, the EU-ETS for aviation also covers the CO2 emissions of commercial airlines on intra European flights within the European Economic Area (EEA). The EU-ETS registry's CO2 emission results show that in 2018, for the first time, an airline – the Irish Low-Cost airline Ryanair – has been ranked among the 10 biggest CO2 emitters in Europe. Thereby, for the first time an airline is among Europe's biggest emitters of CO2 that is not a coal power plant. Ryanair as Europe's biggest airline recorded 9.88 million tonnes of CO2 emissions in 2018, a 6.9% increase on the previous year and a 49% increase compared to five years ago. However, it is not the only concerning fact that Ryanair has entered the ranking of the top 10 CO2 emitters in Europe. In fact, the results of the other registered airlines are equally concerning as the overall CO2 emissions from intra-EEA flights covered by the EU-ETS have risen by 26% since 2012. The other LCCs like EasyJet, Jet2.com, Wizz Air and Norwegian but also full service airlines like Lufthansa and British Airways, as an IAG subsidiary, show a increasingly concerning growth rates in their CO2 emissions since 2012. It shows that the increase in the volume of flights on intra-European routes also has a significant impact on the increase of CO2 emissions of the aviation sector.

【記事：Article】

1. The EU's emissions trading system (EU-ETS)

The EU-ETS started its work in 2005 and covers approximately 11,200 installations including power stations and manufacturing plants in the 28 EU Member States plus Iceland, Liechtenstein and Norway. The scheme covers the CO2 emissions of the installations in the power and heat generation as well as energy-intensive industry sectors including oil refineries, steel works and production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals. In total, around 45% of total EU's GHG emissions are regulated under the EU-ETS. The EU-ETS works by putting a limit on overall emissions from covered installations, which is reduced each year. Within this limit, companies can buy and sell emission allowances as needed under the "cap-and-trade" principle. The EU-ETS is so far the world's first and also major carbon trading scheme. Pricing carbon is expected to also promote investment in clean, low-carbon technologies. By allowing companies to buy credits from emission-saving projects around the

world, the EU-ETS acts as a driver of investment in clean technologies and low-carbon solutions globally.

After each year a company must surrender enough allowances to cover all its emissions. If a company reduces its emissions, it can keep the spare allowances to cover its future needs or sell those allowances to another company. In 2013, over 40% of the allowances were auctioned. Over the period 2013-2020, the Commission estimates that 57% of the total amount of allowances will be auctioned, while the remaining allowances are available for free allocation.

The legislative framework of the EU-ETS's next trading period (phase 4) was revised in Directive (EU) 2018/410 of 14 March 2018. It amended Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 to enable it to achieve the EU's 2030 emission reduction targets in line with the EU's 2030 climate and energy policy and to comply with the EU's commitments under the 2015 Paris Agreement. In 2020, GHG emissions from sectors covered by the EU-ETS are expected to be 21% lower than in 2005. In 2030, a 43% reduction of EU-ETS emissions should be achieved, compared to 2005.

2. EU-ETS for aviation and the ICAO's CORSIA

In 2012, the EU introduced the EU-ETS for aviation for reducing the GHG emissions from international aviation. Originally, the Directive 2008/101/EC on reducing emissions from aviation included also international aviation. However, the EU eventually agreed to limit the scope of the EU-ETS for aviation as a reaction on the International Civil Aviation Organisation (ICAO)'s efforts to prepare the introduction of an international regulation of GHG emissions for aviation at ICAO level. The 39th session of the ICAO's Assembly reached an agreement to address international aviation emissions on 6 October 2016. Therefore, the EU reduced the scope of its EU-ETS for aviation to intra-European flights in the EEA. About 1400 aircraft operators operating intra-European flights are covered under the EU-ETS.

The ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) will start with a pilot voluntary phase in 2021, followed by a voluntary first phase in 2024 and a compulsory second phase from 2027. As a first step, GHG emissions data are collected by the airlines as of 1 January 2019. Therefore, airlines and business aircraft operators, which fly on international routes, need to monitor and report their CO2 emissions to the authorities as of 1 January 2019. This data will form part of the baseline of CO2 emissions for CORSIA. From 2021, airlines will need to start offsetting the growth in emissions from the routes between those states, which have volunteered to participate in CORSIA's pilot phase. However, the reporting stage of CORSIA is not voluntary and once a country has decided to join CORSIA, compliance with the reporting phase becomes mandatory. Therefore, as of 2019, airlines and business aircraft operators can be expected to increasingly consider ways to reduce their GHG emissions.

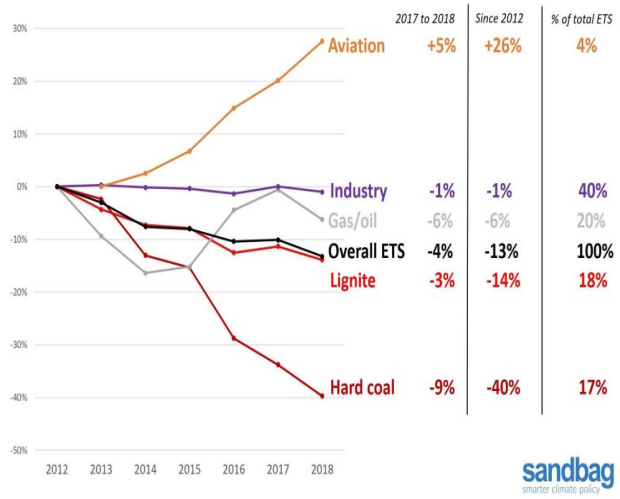
The EU supports the ICAO's CORSIA and aims to join the pilot phase of the scheme in 2021 on a voluntary basis. It can be expected that the EU will continue its support for the CORSIA scheme as it is the only existing measure at international level. Accordingly, all international flights to/from/between airports in the EEA should be subject exclusively to CORSIA and be removed from the scope of the EU-ETS as of 1 January 2021.

In the wake of the introduction of the CORSIA, the EU has amended the EU-ETS for tackling CO2 emissions from aviation and suspended extra-European aviation's CO2 emissions until the ICAO's CORSIA scheme can be evaluated after its launch in 2021. However, there exist serious doubts over the environmental effectiveness of carbon offsets under the CORSIA scheme. Meanwhile, the EU continues to deal with the intra-European aviation sector's GHG emissions under the EU-ETS for aviation.

3. The European Commission's data of CO2 emissions from aviation in 2018

According to the EU, without any action, CO2 emissions from aviation are set to grow by up to 300% by 2050. The EU-ETS for aviation covers intra-European flights' CO2 emissions, with some exceptions (flights to the Canaries, Madeira, the Azores).

On 1 April 2019, the European Commission published the preliminary 2018 emissions data under the EU-ETS and granted unlimited access to installation-level 2019 verified emissions data on the European Union Transaction Log (EUTL) website. The figures are based on the verified emissions data submitted so far by 94% (in volume) of the 11,200 installations currently included in the EU-ETS. In 2018, the EU-ETS covered installations emitted 1,574 million tCO2, 4% less than in 2017.



source:

https://i2.wp.com/sandbag.org.uk/wp-content/uploads/2019/04/eu-emissions-2018-1.jpg?w=1080&ssl=1

Graph 1: Comparison of EU-ETS covered industry's CO2 emissions

According to Carbon Market Data, a European company providing carbon market research, this decrease in CO2 emissions is mainly due to the closure of some coal power plants, the implementation of energy efficiency measures as well as the on-going development of renewable energy assets. Hard coal emissions fell by 9% in 2018 compared to 2017, which represents a 40% decrease since 2012. Instead, lignite emissions fell only by 3% in 2018 compared to 2017 and they are now higher than hard coal emissions, and constitute 18% of all EU-ETS covered CO2 emissions.

Regarding the development of CO2 emissions for intra-EEA flights, being covered by the EU-ETS for aviation, the GHG emissions of airlines rose by 4.9% in 2018, compared to 2017. The EU-ETS-registered aircraft operators emitted a total of 67.56 million tonnes (MT) in 2018, up from 64.39 MT in 2017 (+4.9%). These operators were entitled to free allowances of 31.20 MT, and they were required to purchase and surrender allowances covering the remaining 36.36 MT.

The top two emitters among the airlines are, unsurprisingly, Europe's leading low-cost carriers, Ryanair and EasyJet, with verified emissions of 9.88 MT and 6.32 MT, respectively.

Table 1: 15 biggest CO2 emitting airlines covered by EU-ETS

AIRLINE	VERIFIED EMISSIONS (tonnes)				
	2018	2017	2016	2015	2014
Ryanair	9,879,100	9,245,535	8,438,841	7,400,795	6,639,350
EasyJet [1]	6,321,814	5,694,907	5,306,115	4,925,431	4,642,632
Lufthansa	4,350,902	3,969,395	3,813,949	3,829,939	3,960,860
British Airways [1]	3,010,184	2,954,544	2,909,061	2,782,188	2,703,954
Norwegian [1]	2,782,002	2,568,349	2,333,349	2,110,666	2,058,681
Scandinavian Airlines System	2,466,820	2,485,804	2,432,546	2,357,470	2,366,299
Air France [2]	2,386,841	2,386,841	2,318,274	2,428,126	2,428,578
Eurowings	2,385,511	1,304,405	461,778	58,737	N/A
Wizz Air [1]	2,349,909	2,083,183	1,832,991	1,548,220	1,255,436
Vueling Airlines	2,167,196	1,995,184	2,014,935	1,840,120	1,611,610
KLM	1,825,164	1,769,283	1,649,880	1,569,239	1,551,342
Alitalia	1,459,157	1,420,336	1,484,436	1,484,690	1,578,058
TAP Air Portugal	1,370,440	1,216,917	1,115,287	1,160,829	1,108,664
Iberia [1]	1,246,596	1,130,158	1,098,987	1,017,587	875,670
Jet2.com	1,216,774	1,014,374	764,877	684,179	719,693

[1] separate data of airline subsidiaries

[2] 2018 emissions data not reported in time, therefore 2017 emissions are used

source:

https://www.greenaironline.com/news.php?viewStory=2583, quoting sources: European Commission, Sandbag

They were followed by Lufthansa (4.35 MT), British Airways (3.01 MT) and Norwegian (2.78 MT). Ryanair's GHG emissions grew by 6.9% in 2018. However, this growth rate was surpassed by eight other European airlines, including the LCC competitors Norwegian (+8.3%), Vueling (+8.6%), EasyJet (+11.0%), Wizz Air (+11.1%) and Jet2.com (+20.0%). These airlines

recorded a much faster growth of their CO2 emissions than Ryanair. However, also full service airlines including TAP, Finnair and Lufthansa outpaced the Irish carrier in their growth rate of GHG emissions. Comparing the top 10 European polluters of CO2 emissions, since 2012, CO2 emissions from hard coal power plants have fallen by 40%, whereas in the same timeframe, aviation emissions have increased by 26%. In 2018 for the first time, an airline – the Irish Low-Cost airline Ryanair – joined the ranking of the top 10 European CO2 emitters, according to the EU-ETS statistics and Sandbag analysis. While nine out of the top ten CO2 emitters are lignite power plants, out of which seven are located in Germany, the only non-energy producing emitter under the top ten is Ryanair, as its emissions increased again by 6.9% to 9.88 million tonnes of CO2 emissions in 2018, compared to 2017. (Ryanair's CO2 emissions in 2018 are rounded to 9.9 million tonnes in the following table 2).

Table 2: The EU's main CO2 emitters in 2018

TOP 10 EUROPEAN POLLUTERS — Lignite, Hard coal power plants

RANK	PLANT	OWNER	2018 CO_2 EMISSIONS (Mt)	YEAR ON YEAR CHANGE
1	Bełchatów	PGE	38.3	2%
2	Neurath	RWE	32.2	8%
3	Niederaußem	RWE	25.9	-5%
4	Jänschwalde	LEAG	22.8	-3%
5	Weisweiler	RWE	16.8	-11%
6	Schwarze Pumpe	LEAG	12.4	9%
7	Lippendorf	LEAG	11.7	3%
8	Maritsa East 2	TPP	10.5	0%
9	Boxberg	LEAG	10.2	-4%
10	Ryanair	Ryanair	9.9	7%

source:
https://sandbag.org.uk/project/ets-emissions-2018/

Ryanair is placed tenth in the list of the EU's main CO2 emitters that was previously the exclusive domain of Europe's coal-fired power stations. In contrast to the increase of CO2 emissions, Ryanair claims it is disproportionately penalised by the EU-ETS for aviation compared to full service, legacy carriers with many routes outside the scope of the EU-ETS. Instead Ryanair, as a short-haul operator, could be considered being disadvantaged compared to other airlines like Lufthansa, British Airways and others, as their long-haul flights are not covered by the EU-ETS. Therefore, it is very likely that the other EU airlines' total CO2 emissions would be much higher than those of Ryanair, if their global emissions were taken into account. Since the Irish LCC Ryanair is a short-haul operator that flies almost exclusively within Europe and has to monitor almost all of its entire CO2 emissions, it supports the replacement of EU-ETS with the ICAO CORSIA scheme.

The CO2 emission results for 2018 underline, that lignite power plants are the main problem in the EU regarding their high CO2 emissions. However, while industrial installations covered by the EU-ETS are showing a general decrease in their levels of CO2 emissions, airlines are on the way to become the new major emitters of CO2. This trend will continue until the EU will introduce measures that will lead to a significant CO2 emission reduction in the aviation sector.

4. Considerations regarding an introduction of a tax regime to limit CO2 emissions in aviation in the EU

Overall CO2 emissions from intra-EEA flights covered by the EU-ETS have risen by 26% since 2012 and there are increasingly concerns that CO2 emissions from aviation could further grow, as the EU-ETS only records emissions of flights within the EEA. Despite various failed attempts over the past two decades, the aviation sector is still excluded from fuel tax or VAT-style taxes. All aviation fuel used in the EU is exempted from taxes, although it would be permitted to levy taxes on European domestic flights and intra-EU flights since 2003. Under the 2003 Energy Taxation Directive (ETD), most fuels and energy products in the EU are subject of taxes. However recently, EU Member States have started discussions to introduce an intra-EU tax on kerosene and other taxation options. Taxation matters are an exclusive competence of the individual EU Member States. Therefore, attempts to impose EU rules would need

unanimous approval from all 28 Member States. At the Economic and Financial Affairs (ECOFIN) meeting on 12 February 2019, the Dutch finance minister provided information on the Dutch initiative to introduce a tax on kerosene. The Dutch Government is advocating the introduction of taxes on aircraft passengers or aviation fuel to help offset the environmental costs of flying. The EU finance ministers gave tentative support to the Dutch initiative on a EU-wide tax on aviation fuel. The EU finance ministers tasked the Netherlands to develop a draft and draw up the possibilities to introduce new EU aviation tax to help reduce carbon emissions from passenger and airfreight flights. In June 2019, the Netherlands is expected to hold a conference with EU Member States to discuss carbon pricing and aviation, and how the individual states can work together. The Belgium Walloon Minister for the Budget, Finance, Energy, Climate and Airports Jean-Luc Crucke, asked the Council's presidency, Romania, to also organize a debate regarding the idea of introducing a tax regime to aviation. The Secretary of State at France's ecological ministry Brune Poirson stated that the French government fully shared the Dutch and Belgium views and that the taxation issue in aviation should be part of the working programme for the next five-year term of the European Commission.

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