



# GROUNDNDED

**TEN REASONS WHY INTERNATIONAL  
OFFSETTING WON'T SOLVE HEATHROW'S  
CLIMATE CHANGE PROBLEM**

## Cover photo

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## About WWF-UK

At WWF-UK, we want a world with a future where people and wildlife can thrive. So we're working with businesses, governments and communities to address the world's most important environmental challenges. We're creating solutions that are helping to transform the future for the world's wildlife, rivers, forests and seas in areas we regard as particular priorities. We're pushing for the reduction in carbon emissions needed to avoid catastrophic climate change. And we're pressing for measures to help people live sustainably, within the means of our one planet.

Find out more about our work at [wwf.org.uk](http://wwf.org.uk)



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# INTRODUCTION

The UK Government is currently consulting on a new runway at Heathrow Airport<sup>1</sup>. The last time Heathrow tried to expand back in 2010, it was blocked in the courts as incompatible with the UK's climate change commitments. Now here we are in 2017 with a feeling of *déjà vu*. The proposed new runway is projected to push UK aviation emissions in 2050 up 15% over the maximum limit advised by the Government's independent expert advisers the Committee on Climate Change (CCC)<sup>2</sup>, with no plan for dealing with these extra emissions.

Aviation is the most carbon-intensive form of transport and one of the fastest growing sources of carbon emissions in the world. With a third runway, Heathrow Airport will become the UK's largest single source of carbon emissions. Expanding Heathrow without a plan to deal with these extra emissions therefore poses a very real threat to the achievement of the UK's legally binding climate change commitments.

WWF has been calling on the Government to explain how it is going to deal with the extra emissions from a new runway, either in the National Policy Statement (NPS) or the Emissions Reduction Plan (ERP aka Clean Growth Plan). So far the Government has only said it will "look at" carbon emissions in developing its new aviation strategy over the next couple of years<sup>3</sup> – after the NPS and ERP have already been completed.

The Government has strongly hinted that it doesn't have to worry about these extra emissions because of an international agreement struck in Montreal last October<sup>4</sup>. The agreement, between the 191 Member States of the UN's International Civil Aviation Organization (ICAO), committed to introduce a Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) from 2020. The aim of the CORSIA is to achieve ICAO's "aspirational" goal of "carbon neutral

growth from 2020" (CNG2020). This means that, in theory, for every tonne of CO<sub>2</sub> airlines emit above 2020 levels, they will have to buy a carbon credit representing a tonne of CO<sub>2</sub> reduced elsewhere.

WWF supports the CORSIA agreement as an important step forward for international efforts to tackle climate change. We also commend the role the UK Government played in the ICAO negotiations, frequently at the forefront of calls for greater ambition in the scheme. [But does the CORSIA agreement really mean that the UK Government doesn't have to worry about aviation emissions at home anymore?](#)

In this briefing we draw on our experience of the ICAO negotiations to explain ten reasons why the CORSIA agreement means it is far from "job done" for aviation emissions. Instead of using CORSIA as an excuse to expand airport capacity, we are calling on Government to:

- Set out clear plans for limiting aviation emissions to the CCC's recommended 2050 limit before making its final decision on Heathrow expansion.
- Continue to push for greater ambition on aviation emissions through ICAO and the EU.





# SUMMARY

WWF wants the new global aviation carbon market – the CORSIA – to succeed. This is why we have put so much time and effort into the ICAO negotiations. We want it to have robust credit criteria and accounting rules to ensure that every offset credit claimed by an airline taking off from Heathrow – or any other airport around the world – generates a real emission reduction, supports sustainable development and attracts a price that incentivises investment in low-carbon behaviours and technologies.

This is the future we want and we have worked closely with the UK Government to push for ambition in the ICAO negotiations. But there is still a huge gap between the future we want and the reality today.

The CORSIA has a [weak target](#) that falls far short of the requirements of the Paris Agreement. Even worse, this target [only applies to CO<sub>2</sub>](#), which ignores half of aviation's global warming impact.

Of course, the CORSIA is nothing more than an [agreement on paper](#) right now, with several design decisions still outstanding. These include the [credit criteria](#), which are vital for ensuring offsets really reduce emissions without doing harm to people and nature. Just as important are the [accounting rules](#), to ensure these credits aren't being double or triple counted, which would cheat the climate.

Another problem with relying on the CORSIA is that governments and the airline industry only want it to be a [“temporary gap filler”](#), whereas UK climate targets are long term. We also have to overturn ICAO's stubborn [opposition to higher carbon prices](#) and make sure that the UK makes a [fair contribution](#) to CORSIA compared to other countries.

All in all, the CORSIA [does not meet the CCC's criteria](#) for an effective measure – and even relying on the [EU ETS looks dodgy](#) in light of Brexit.

We recommend the UK Government continue to push for greater ambition in the ICAO negotiations. But until the CORSIA is really fit for purpose, [the UK Government must take direct responsibility for emissions from aviation – especially from proposed new runways](#) – instead of pretending the problem will be solved for them by a flawed carbon market that does not yet exist.

## 10 PROBLEMS WITH RELYING ON OFFSETTING TO TACKLE AVIATION EMISSIONS

- 1 [THE ICAO CORSIA HAS A WEAK EMISSIONS TARGET](#)
- 2 [THE CORSIA IGNORES HALF OF AVIATION'S GHG EMISSIONS](#)
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## 1

# THE ICAO CORSIA HAS A WEAK EMISSIONS TARGET

ICAO's "aspirational" goal of "carbon neutral growth from 2020" (CNG2020) means flatlining international aviation emissions at 2020 levels. This is not a very ambitious goal. Considering the pledges to the UNFCCC Paris Agreement, developed countries were rightly expected to come to the table with pledges to make deep cuts in carbon emissions, to bend the line down, not simply to flatten it.

Aviation is a service mainly used by the world's wealthy people and businesses. It's estimated that around 95% of the world's population have never even set foot on a plane, as most people simply can't afford to<sup>5</sup>. Even in the UK, a relatively wealthy country, nearly half the population (47%) didn't fly at all in 2015<sup>6</sup>.

The global aviation industry is also wealthy. According to industry figures, if aviation were a country, it would rank 21st in size by GDP (similar in size to Sweden or Switzerland)<sup>7</sup>. As such, in the context of global climate change, aviation should be treated like a wealthy developed country. It should have a target that is based on robust modelling of the overall emissions reduction requirements for achieving the Paris Agreement's goal of limiting temperature increases to "well below" 2°C, and "pursuing efforts" towards 1.5°C<sup>8</sup>.

Furthermore, the CORSIA is expected to deliver this weak goal primarily through offsetting. This means paying other sectors of the global economy to reduce emissions, rather than reducing emissions directly from aviation.

It's clear then that international aviation is getting an easy ride compared to the rest of the global economy, with a weak goal that passes the buck to other sectors of the global economy. There are provisions to increase the ambition of the ICAO CORSIA over time (which WWF fought for in the negotiations), to "support the purpose of the Paris Agreement, in particular its long-term temperature goals"<sup>9</sup>. To maintain its global leadership on climate change, the UK Government should push to trigger these provisions and increase the ambition of the scheme as soon as possible.

Finally, the ICAO CORSIA will not provide any financial support to help developing countries deliver their domestic climate change mitigation or adaptation strategies, even though this is a basic expectation of developed countries in UNFCCC.

**Conclusion: The ICAO CORSIA is not a fair contribution from the aviation sector to global climate change efforts and must be strengthened before any final decision on Heathrow expansion.**

2

# THE CORSIA IGNORES HALF OF AVIATION'S GHG EMISSIONS

The CORSIA only targets emissions of CO<sub>2</sub> from international flights. However, non-CO<sub>2</sub> impacts from aviation also have a significant impact on climate change. These include nitrogen oxide (NOx), water vapour, contrails, and soot and sulphate aerosols.

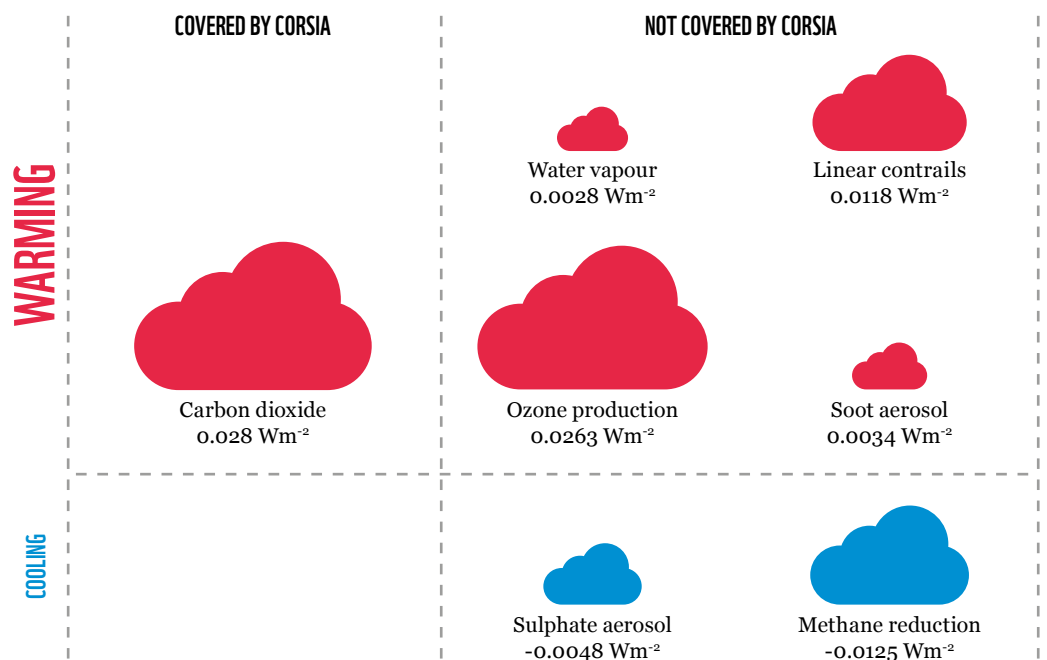
Some of these have a slight cooling effect, but the overall effect is additional warming. For example, as can be seen in the graph below, NOx reduces methane, which has a slight cooling effect, but produces ozone, which has a higher warming effect. Similarly, sulphate aerosols have a cooling effect, but soot aerosols have a warming effect.

In their landmark 2009 paper on the issue<sup>10</sup>, Lee et al. estimated that the total overall radiative forcing of aviation up to 2005 was roughly double the effect of CO<sub>2</sub> alone (0.055 W m<sup>-2</sup> compared to 0.028 W m<sup>-2</sup>). This excludes the less certain effects of aviation induced-cloudiness, which could further increase the overall warming effect to 0.078 W m<sup>-2</sup>, more than 2.5 times the effect of CO<sub>2</sub> alone. In other words, the CORSIA only covers half at most of the overall global warming impact of aviation.

Non-CO<sub>2</sub> impacts have not previously been accounted for or regulated due to uncertainty over their exact effects. However, the science has matured significantly in recent years, for NOx, contrails and water vapour in particular<sup>11</sup>. Therefore, climate change measures should take account of these impacts. WWF proposes a simple multiplier (e.g. x2) to account for these effects.

**Conclusion: The UK Government cannot rely on CORSIA alone because it only requires airlines to offset half of their overall global warming impact. Taking domestic action, such as constraining airport capacity, would address both the CO<sub>2</sub> and non- CO<sub>2</sub> effects of aviation.**

## GLOBAL WARMING IMPACTS OF AVIATION<sup>12</sup>





## 3

# THE CORSIA ONLY EXISTS ON PAPER RIGHT NOW

There is a big difference between deciding to build a house, designing a house, and actually having a roof over your head. So far in ICAO we have the decision and some of the design work, but the actual building work has not yet begun. ICAO still needs to finish its detailed design work on monitoring, reporting and verification (MRV), emissions units criteria (EUC) and registries. Then it needs to get the IT systems built and up and running to enable airlines to track how many credits they need to buy, and to enable governments to check whether or not they have done so.

Then each one of ICAO's 191 Member States has to find someone to do the data monitoring and verification. In the UK, we have several agencies that could potentially perform this role, such as the Environment Agency, which performs a similar role for the EU Emissions Trading System (ETS). However, other countries do not have this experience and may need to start from scratch.

The 191 Member States will also need to introduce domestic regulations that actually require airlines to comply with the scheme, along with enforcement measures for non-compliance (e.g. either failing to report emissions, failing to buy enough offset credits, or buying credits that don't meet the criteria). One can easily imagine a flight between a country that has introduced the necessary regulations and a country that hasn't. Would the airline be required to buy offsets under the CORSIA or not? Both countries would need to agree on what to do in this situation.

In these turbulent political times, international agreements are fragile things. During the US election campaign, Donald Trump signalled his intention to withdraw from the Paris Agreement, with discussions in the White House ongoing at the time of writing<sup>13</sup>. The Trump administration has not expressed a view on CORSIA, although the Senate Republican Policy Committee has vocally opposed a recent decision of

the Environmental Protection Agency that could lead to domestic carbon regulation for aviation<sup>14</sup>.

The US is critically important for the success of CORSIA. Without US participation, CORSIA's coverage of emissions above 2020 levels between 2020 and 2035 would drop from 77% to just 56%<sup>15</sup>. It is also important politically, having been at the heart of the CORSIA negotiations these past years. But it seems the US' continued support for CORSIA is not necessarily guaranteed.

Furthermore, it is widely acknowledged that the success of the CORSIA agreement was largely due to China committing to participate from day one of the scheme – but the actual wording of this commitment is a bit woollier: they “**expect** to be early participants”<sup>16</sup> (emphasis added). China actually made a formal reservation to the CORSIA agreement, stating that it is “irrational and unfeasible to require States to commit their compliance” until further details of the scheme are known<sup>17</sup>. Argentina, India, Russia and Venezuela also made reservations to various elements of the CORSIA agreement<sup>18</sup>.

**Conclusion: The UK Government should not rely on CORSIA until it's actually shown to be working effectively with unfaltering political support.**





## 4

## THE CORSIA MIGHT ALLOW DODGY OFFSET CREDITS

One of the fundamental questions about CORSIA is: what kind of carbon reductions will be eligible under the scheme? Should airlines buy credits from renewable energy projects, waste management projects, forestry projects, fossil fuel projects, etc? This was a fundamental concern for WWF in the CORSIA negotiations. Through the International Coalition for Sustainable Aviation (ICSA), WWF is an active participant in the technical negotiations on emissions unit criteria (EUC), trying to shape the criteria to ensure that the carbon reduction projects eligible under CORSIA achieve real emissions reductions and support sustainable development.

The current main source of offset credits is the UN Clean Development Mechanism (CDM). The CDM has been subject to heavy criticism in recent years over issues with credit quality and the failure to deliver a meaningful carbon price signal (credits are currently trading for less than \$1 a tonne). The Paris Agreement signalled a potential replacement of the CDM with a new crediting mechanism, commonly dubbed the Sustainable Development Mechanism (SDM). But the future of the CDM, and the details of the SDM, are subject to ongoing negotiations in the UNFCCC, so it is not really clear yet where the supply of offset credits for CORSIA is actually going to come from.

There are several reasons why offset credits may actually fail to deliver the stated emissions reductions, such as:

- **Additionality** – it's possible the reduction would have happened anyway without the demand for offsets
- **Quantification** – it can be very difficult to accurately monitor greenhouse gas emissions and reductions from some activities and in some parts of the world
- **Monitoring and verification** – if reductions are not monitored and verified they may not be genuine
- **Permanence** – there is a risk that reductions or sequestration activities in some sectors could be inadvertently reversed

Recent analysis by Stockholm Environment Institute (SEI), Öko-Institut and others has found that 73% of CDM credits have a low likelihood of being additional and accurately quantified, while only 7% of CDM credits actually have a high likelihood<sup>19</sup>.

There are also broader sustainable development risks associated with some offset project types. For example, some project types support the continued use of fossil fuels, while others (such as large hydro) can have detrimental impacts on local communities and wildlife.

The criteria must be robust in order to have confidence that CORSIA will deliver real emissions reductions, and without undermining sustainable development. Last year WWF published analysis by the SEI on the supply and sustainability of carbon offsets (and alternative fuels) for international aviation<sup>20</sup>.

The charts overleaf from the SEI analysis shows that there are enough medium to high quality credits (yellow and green respectively), in terms of environmental integrity and sustainable development impacts, to fully achieve ICAO's CNG2020 goal out to 2035 (5.1 GtCO<sub>2e</sub>) – but there is also a huge potential supply of offsets that have low environmental integrity and/or negative sustainable development impacts (21.3 GtCO<sub>2e</sub>).

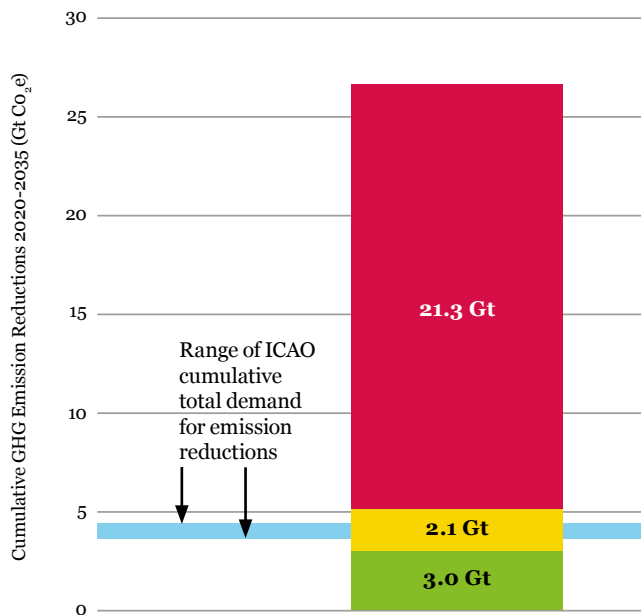
This means ICAO could screen out offset project types with low environmental integrity and risks to sustainable development and still meet its goal. However, many countries and airlines are pushing for lax criteria to ensure maximum possible supply of offset credits at lowest possible cost.

These technical negotiations are strictly confidential, which in itself gives cause for concern. ICAO's lack of transparency in developing the criteria suggests that there may also be a lack of transparency in applying the criteria and governing the scheme. It is not yet clear when these negotiations will conclude, nor when (or

even if) ICAO will publish the detailed criteria and governance procedures in the public domain. The public cannot have confidence in these criteria without transparency<sup>21</sup>.

**Conclusion: The UK Government cannot rely on CORSIA to reduce emissions until effective emissions unit criteria are agreed and made public – ruling out dodgy offsets – with robust and transparent governance procedures.**

**TOTAL CUMULATIVE SUPPLY OF OFFSET CREDITS 2020 - 2035 BY POTENTIAL ENVIRONMENTAL INTEGRITY AND SUSTAINABLE DEVELOPMENT SCREENS (GT CO<sub>2</sub>E)<sup>22</sup>**



## 5

## THE CORSIA MIGHT DOUBLE-COUNT COUNTRIES' CARBON CUTS

For argument's sake, let's say ICAO transparently introduces effective credit criteria and robust governance procedures. Even then, there is a further hurdle to ensuring that the CORSIA actually generates climate benefit. This is ensuring that emissions reductions credited under CORSIA are uniquely credited to CORSIA and not double counted.

For a global scheme like CORSIA there is one major double counting risk in particular. Airlines will be purchasing offsets from projects that are (almost certainly) based within countries, and as of 2015, all ICAO Member States have their own climate change commitments under the Paris Agreement, called Nationally Determined Contributions (NDCs). This is a big change from the Kyoto Protocol, where only so-called Annex I (developed) countries had mitigation commitments.

The world's current main source of offset credits, the UN Clean Development Mechanism (CDM), only allows for the generation of offsets in non-Annex I countries. Negotiations in UNFCCC on Article 6 of the Paris Agreement, which envisages a replacement of the CDM commonly dubbed the Sustainable Development Mechanism (SDM), have only just begun.

It is absolutely essential that ICAO develops registries and accounting mechanisms that guarantee that any emissions reductions claimed by airlines under CORSIA are not also claimed by the host country towards their Kyoto commitments or NDCs. This will require close collaboration across the two parallel sets of technical negotiations on the CORSIA in ICAO and Article 6 of the Paris Agreement in UNFCCC. In the absence of an effective global accounting regime, the UK may need to limit the use of offset credits on UK departing flights to those generated within the UK.

**Conclusion: The UK Government should not rely on CORSIA until both ICAO and UNFCCC have agreed robust measures to prevent double counting of emissions reductions.**

6

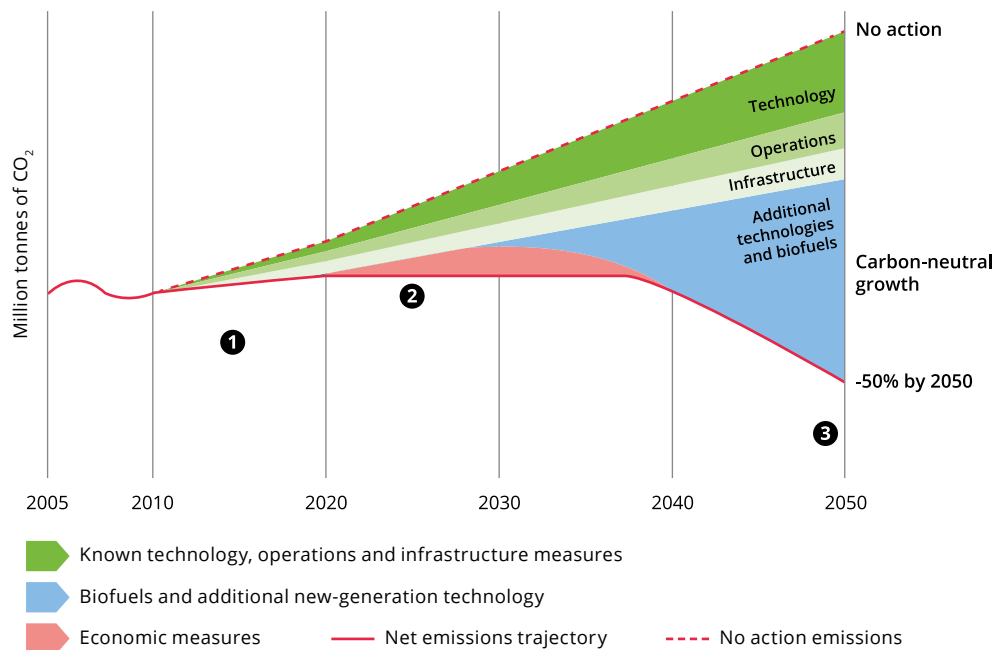
# THE CORSIA IS ONLY SEEN AS A “TEMPORARY GAP FILLER”

The aviation industry and several countries consider the CORSIA to be a temporary “gap-filler”. The global aviation industry body the Air Transport Action Group (ATAG) has a long-term target to reduce emissions from international aviation by 50% from 2005 levels by 2050<sup>23</sup>. However, ICAO themselves are yet to set an official long-term target for the sector.

## MAPPING OUT THE INDUSTRY COMMITMENTS<sup>24</sup>

- 1 Improve fleet fuel efficiency by 1.5% per year from now until 2020
- 2 Cap net emissions from 2020 through carbon neutral growth
- 3 By 2050, net aviation carbon emissions will be half what they were in 2005

Schematic, indicative diagram only



While ATAG’s ambition is welcome, it is not clear how the abatement envisaged under this commitment will come forward. The CORSIA would fall inside the red wedge of the chart above, taking the role of temporary “gap-filler”<sup>25</sup> as described above. The most problematic part of the chart above is the blue wedge comprising “additional technologies and biofuels”. WWF is very sceptical that there is sufficient sustainable biofuel feedstock available to meet this demand, and it is not clear what exactly these “other technologies” are that might make up the shortfall in sustainable biofuel supply. While there is R&D underway into electric flight, it is still a long way from commercialisation.

Furthermore, even if these fuels and technologies were sustainable and feasible, it is not at all clear what measures would be brought forward to phase in their use. Indeed, one of the main benefits of economic measures (such as CORSIA) is that they can raise carbon prices in order to incentivise investment in these fuels and technologies – although ICAO themselves are reluctant to embrace higher carbon prices for the sector.

**Conclusion: The Government should not rely on CORSIA to meet 2050 commitments as it is only agreed until 2035, with no technologies or policies currently in place to ensure sustained abatement from the sector beyond 2035.**



## 7

# ICAO DOESN'T WANT HIGHER CARBON PRICES FOR AVIATION

WWF's hope for CORSIA is that it will not only drive investment in carbon reduction projects outside the aviation sector, but that it will generate a carbon price signal that incentivises in-sector action to reduce emissions, such as more efficient aircraft, sustainable low-carbon fuels and demand moderation. This way, the CORSIA would not be a mere temporary "gap-filler", but the driving force to ensure that airlines and governments take in-sector action to reduce emissions. It could be the central tool for achieving ATAG's ambitious goal to reduce international aviation emissions in 2050 by 50% from 2005 levels.

However, the forecast for carbon prices under CORSIA is extremely uncertain. In its own analysis, ICAO simply uses carbon price forecasts from the International Energy Agency (IEA)<sup>26</sup>. The Paris Agreement has two implications for the future price of carbon under market-based measures such as CORSIA, which are not yet factored into these price forecasts.

Firstly, the Paris Agreement increases the global ambition for tackling climate change, from seeking to stabilise temperature rise at 2°C above industrial levels, to aiming to hold temperature rise "well below" 2°C, and "pursuing efforts" towards 1.5°C<sup>27</sup>. This increases demand for abatement which, all other things being equal, increases the cost of carbon.

Secondly, the Paris Agreement commits all parties to make efforts to reduce their emissions. This means a fundamental change for carbon markets. Currently, the CDM is supplied by emissions reduction projects in countries that do not have emissions reduction commitments under the Kyoto Protocol. As all countries now have commitments under Paris, this "free" supply of credits from uncapped jurisdictions cannot continue. Every tonne of CO<sub>2</sub> abated now has value first and foremost to the country in which the abatement occurred, to count towards its own emissions commitments. This again has the effect of increasing demand for the same tonne of abatement, again increasing prices – as long as robust measures are introduced to prevent double claiming of abatement.

In theory, this is of course good news. Stronger targets and more countries taking action is a positive result from the Paris Agreement. Higher carbon prices will send stronger market signals on the need for airlines to make air travel lower-carbon, or for consumers to cut down the amount they fly. Higher carbon prices are also assumed in the Government's emissions forecasts for aviation and the impact of a new runway – despite the absence of any policy likely to deliver these higher prices.

However, the ICAO CORSIA Assembly Resolution includes a cost control paragraph, which decided on "the need to provide for safeguards in the CORSIA to ensure the sustainable development of the international aviation sector and against inappropriate economic burden on international aviation"<sup>28</sup>. This is a stark reminder that ICAO's founding mission is to "insure the safe and orderly growth of international civil aviation throughout the world"<sup>29</sup>, and that it is institutionally resistant to any measures that may curtail aviation growth, including higher carbon prices.

**Conclusion: Carbon prices under CORSIA are extremely uncertain. In principle, they should rise to levels that influence airlines' and consumers' behaviour, but ICAO is resistant to this idea.**



## 8

## UK AIRLINES COULD GET AN EASY RIDE UNDER THE CORSIA

The main question about CORSIA is “will it work?” But just as important is the question “is it fair?” Unfortunately, the design of the CNG2020 goal and the CORSIA’s economic formulae could end up giving developed countries like the UK an easy ride compared to developing countries, especially after 2030.

The goal of “carbon neutral growth from 2020” is problematic (as has been argued in ICAO by China, India and others) because it only targets the *growth* in CO<sub>2</sub> emissions *above 2020 levels* – much of which will come from developing countries – without any reference to historical baselines.

So if a country’s emissions from international aviation level out or decline after 2020 (which is entirely possible for developed countries like the UK), that country has no emissions to offset. On the contrary, if a country’s international aviation emissions grow rapidly after 2020 (as projected for many developing countries), then *most* of their aviation emissions would be covered under CORSIA. ICAO has attempted to address this unfairness through two specific design features of the CORSIA.

Firstly, the CORSIA is voluntary until 2027, which means no developing countries would be forced to participate during this period, while developed countries are expected to participate. This unfortunately means that around a quarter of emissions above 2020 levels through to 2035 fall out of the scheme<sup>30</sup>, with industry resisting calls for these missing emissions to be offset by covered participants.

The second important feature is the distribution of “offsetting obligations” for airlines covered by the scheme. Governments generally represent the interests of the airlines headquartered in their territory, so this is an important, if indirect, aspect of the fairness question.

The simplest formula would require all airlines to offset their own emissions above 2020 levels. However, this would also be the least equitable formula for the reasons described above – developing countries expect greater growth than developed countries. A fairer approach would be to take the sum total of international aviation emissions above 2020 levels and divide it between the airlines according to their historical emissions or market share.

The approach chosen by ICAO was to simply make all airlines offset *the same percentage* of their emissions above 2020 levels, the percentage being the overall growth factor of international aviation emissions above 2020 levels. So, if total emissions grow 5%, all airlines offset 5% of their emissions above 2020 levels.

However, it is well established that higher earners shouldn't just pay more *gross* tax, but *higher rates* of tax, because those with the broadest shoulders should make a greater *proportional* contribution. This principle is not reflected in the CORSIA, which simply gives all airlines the same percentage "tax rate" (or "offsetting obligation" in this case).

In fact, the situation is even more unfair from 2030, because then the formula will start taking account of airlines' individual growth rates, which will be higher for fast-growing developing economies. From 2033, the formula will be *mainly* based on individual airlines' growth rates. By this time both emissions and carbon prices will be higher than the scheme's early years – a potential triple whammy for developing countries. Meanwhile, the relatively stable UK aviation sector could actually end up with proportionally lower costs than these developing country carriers.

The CORSIA must be studied carefully to establish whether it requires a fair share of effort from UK airlines towards global efforts to mitigate climate change. The analysis above suggests it does not; therefore greater effort will be required either from other sectors of the UK economy, or from unilateral measures to address aviation emissions, such as constraining capacity.

**Conclusion: The CORSIA could be unfair for developing countries by making them offset the same percentage of emissions as developed countries until 2030, and potentially a higher percentage after 2030. If the UK aviation sector is getting an easy ride compared to developing countries, the UK Government will need to find ways to compensate for this e.g. by constraining capacity.**



## 9

# THE COMMITTEE ON CLIMATE CHANGE OPPOSES OFFSETTING

The CCC's advice to Government on aviation emissions is that they should be held at 2005 levels in 2050, which is 37.5 MtCO<sub>2</sub> for both domestic and international flights, or roughly 36 MtCO<sub>2</sub> for international flights only<sup>31</sup>. This limit, often referred to as the “planning assumption”, is a “gross” target, meaning that it should be achieved through domestic UK measures, not trading. The cost-effective suite of measures recommended by the CCC includes fuel efficiency improvements, some use of sustainable biofuels and some modal shift to rail and videoconferencing. By the Government's own modelling, the new runway at Heathrow would push UK aviation emissions 15% over this limit<sup>32</sup>.

However, the CCC, like WWF, supports the development of international carbon trading in principle, as long as such measures are robust and effective. A well-functioning global carbon market in aviation emissions could potentially, eventually, eliminate the need for the planning assumption, but with a non-existent or poorly functioning market, the planning assumption remains essential.

In 2009, the CCC gave the Government its advice on the key features an international scheme for aviation emissions should include<sup>33</sup>. The table overleaf compares the CCC's advice with the ICAO CORSIA agreement.

Given that the CORSIA agreement fails to properly meet any of the CCC's criteria for an effective measure, it is no surprise that CCC Chair Lord Deben wrote in November 2016<sup>34</sup> that “the current status of the ICAO agreement does not change the Committee's existing view” i.e. that “[UK] aviation emissions should be at the same level in 2050 as they were in 2005 **without the use of international credits**” (emphasis added).

**Conclusion: While the CORSIA agreement is a step forward, it falls far short of the expectations of the UK Government's climate experts. It will need to be significantly strengthened – in the meantime, the UK must take action to limit aviation emissions e.g. by constraining capacity.**



CCC ADVICE	CORSIA AGREEMENT
<b>CAPPING GLOBAL AVIATION EMISSIONS</b>	
<p>Aviation CO<sub>2</sub> emissions should be capped, either through a global sectoral deal or through including (domestic and international) aviation emissions in national / regional (e.g. EU) emissions reduction targets.</p>	<p>The CORSIA agreement caps <b>net</b> aviation CO<sub>2</sub> emissions from 2020 at 2020 levels, with some exemptions. Analysis suggests that 77% of international aviation CO<sub>2</sub> above 2020 levels will be covered by CORSIA as currently designed<sup>35</sup>.</p>
<p>Ideally all aviation CO<sub>2</sub> emissions would be capped. It may be necessary, however, that there is an interim phase where the cap applies to all departing and arriving flights in developed countries with exemptions for intra-developing country flights.</p>	<p>All aviation CO<sub>2</sub> emissions are capped, but participation is voluntary from 2020-2027, with permanent exemptions for countries with low levels of aviation and/or economic activity (unless they opt in).</p>
<p>The level of emissions reduction ambition under any international agreement should be no less than that already agreed by the EU (i.e. developed country net emissions in 2020 should be no more than 95% of average annual emissions from 2004-06).</p>	<p>The agreement caps net international aviation CO<sub>2</sub> at 2020 levels. This will be higher than 95% of average annual emissions from 2004-06.</p>
<b>AUCTIONING ALLOWANCES IN CAP AND TRADE SCHEMES</b>	
<p>Emissions allowances under a cap and trade scheme should be fully auctioned so as to avoid windfall profits for airlines that would ensue under free allowance allocation.</p>	<p>The CORSIA is an offsetting scheme, not a cap-and-trade scheme. As a result, emissions units will not be free (as under free allowance allocation), but likewise they may not be sufficiently expensive to incentivise in-sector emissions reductions in the near term (as under full auctioning).</p>
<p>Aviation auction revenues are one of a number of possible sources for funding of adaptation in developing countries that should be agreed as part of a global deal in Copenhagen.</p>	<p>The CORSIA contains no support for adaptation. The CORSIA could support developing countries' mitigation efforts by promoting investment in mitigation activities within their borders. However, emissions reductions from these activities must be uniquely claimed by an airline under ICAO, and not also claimed by the host country towards its own mitigation commitments under UNFCCC.</p>
<p>Significant R&amp;D that is urgently required to support innovation in the aviation industry should be considered in the context of a global deal for aviation, and funded from aviation auction revenues or other sources.</p>	<p>The CORSIA will only incentivise in-sector action if the price of emissions units rises considerably above the levels seen in e.g. the Clean Development Mechanism (CDM). The agreement does provide some modest incentive to alternative fuel use by exempting the resulting emissions reductions from the formula for allocating offsetting obligations.</p>
<b>EMISSION REDUCTIONS WITHIN THE AVIATION SECTOR</b>	
<p>Emissions trading will be useful for an interim period in providing flexibility to achieve cost-effective emissions reductions, subject to the caveat that the carbon price in any trading scheme should provide strong signals for appropriate demand management and supply side innovation.</p>	<p>The CORSIA carbon price may not provide strong signals for appropriate demand management and supply side innovation in the near term. This will very much depend on the credit criteria and accounting rules, subject to negotiation both in ICAO and UNFCCC.</p>
<p>The aviation industry should also plan, however, for deep cuts in gross CO<sub>2</sub> emissions relative to baseline projections (e.g. for developed country aviation emissions to return to no more than 2005 levels in 2050) which will be required as a contribution to meeting the G8's agreed objective to reduce total global emissions in 2050 by 50%.</p>	<p>The CORSIA agreement includes no target beyond CNG2020.</p>
<b>NON-CO<sub>2</sub> EFFECTS OF AVIATION</b>	
<p>Non-CO<sub>2</sub> effects of aviation must be addressed as part of any international framework through commitment to a schedule for introduction of appropriate policy instruments (e.g. covering NOx, cirrus and contrails). Given current scientific understanding, early introduction of measures to reduce NOx emissions may be feasible and should be seriously considered.</p>	<p>The CORSIA agreement covers only CO<sub>2</sub> with no provisions for non-CO<sub>2</sub> emissions.</p>

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# BREXIT COMPLICATES THE EU EMISSIONS TRADING SYSTEM TOO

This briefing is mainly about the implications of the ICAO CORSIA for UK aviation emissions and airports expansion. However, the ICAO CORSIA is not the only international measure targeting aviation emissions. Airlines flying international routes within Europe have been required to surrender allowances under the EU Emissions Trading System (ETS) since 2012. Airlines flying routes from European origins to non-European destinations, or vice versa, were also briefly required to participate in the ETS, although this requirement was temporarily suspended following significant diplomatic pressure from overseas governments.

While inclusion of aviation in the EU ETS is welcome and necessary, the EU ETS is not yet delivering the carbon price signals it should due to structural problems such as oversupply of allowances, the allocation of free allowances and provisions to allow cheap international offsets into the scheme.

The European Commission recently published proposals to reform the aviation ETS following the CORSIA agreement in ICAO<sup>36</sup>. The central proposals would permanently reduce the scope of the aviation ETS to intra-EU flights only as of this year. However, the Commission left open the question of the aviation ETS' role beyond 2020, when the ICAO CORSIA is expected to come into effect. Notably though, the Commission recognises that it cannot count offsets towards its own 2030 decarbonisation objectives.

The obvious implication is that the UK Government currently does not know whether the aviation ETS will also apply to international aviation beyond 2020, and so cannot rely on it as a tool to guarantee emissions reductions in line with the UK's fair share of global effort.

This is of course compounded by the uncertainty of the UK's own future carbon trading arrangements after leaving the EU.

It is unclear whether the UK would choose to stay in the EU ETS or develop its own carbon pricing regime. Should it opt for the latter, it is up for decision whether such a regime would be based on trading (like the ETS) or administrative pricing (like the Carbon Price Floor). Should it be based on carbon trading, there is then an open question as to whether/how a UK system might link to international systems like the EU ETS, and indeed the ICAO CORSIA.

Nevertheless, for as long as the UK remains a member of the EU, it is vital to push to preserve an enduring role for the aviation ETS. Arguably the aviation ETS' extension to third country flights was the main driving factor behind the progress made to date on the CORSIA in ICAO. The EU and the UK must continue to lead by example on carbon controls for aviation to move forward progress in ICAO.

**Conclusion: The UK Government can no more rely on the EU ETS to tackle aviation emissions than on the ICAO CORSIA. The UK Government must push for ambitious reforms to both schemes to make them considerably more effective if it wants to use them as its primary tools for controlling aviation emissions.**

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# LIST OF ABBREVIATIONS

AC:	Airports Commission
ATAG:	Air Transport Action Group
CCC:	Committee on Climate Change
CDM:	Clean Development Mechanism
CNG2020:	Carbon Neutral Growth from 2020
CO <sub>2</sub> (e):	Carbon dioxide (equivalent)
CORSIA:	Carbon Offsetting and Reduction Scheme for International Aviation
DfT:	Department for Transport
EAC:	Environmental Audit Committee
ERP:	Emissions Reduction Plan (aka Clean Growth Plan)
ETS:	Emissions Trading System
EUC:	Emissions units criteria
Gt:	Gigatonne (billion tonnes)
ICAO:	International Civil Aviation Organization
ICSA:	International Coalition for Sustainable Aviation
MRV:	Monitoring, reporting and verification
Mt:	Megatonne (million tonnes)
NDC:	Nationally Determined Contribution (pledge to the Paris Agreement)
NOx:	Nitrogen oxide
NPS:	National Policy Statement
SDM:	Sustainable Development Mechanism
SEI:	Stockholm Environment Institute
UNFCCC:	United Nations Framework Convention on Climate Change

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