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**TURBULENCE AHEAD: OPTIONS FOR
INTERNATIONAL AVIATION ON THE
FLIGHT PATH TOWARD
DECARBONISATION**

**LAWS523: International Climate Change Law
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Abstract

Of the various contributors to climate change, the international aviation sector is a top-ten global emitter. Thus, the sector's significant and growing contribution to the climate emergency presents a critical challenge that must be addressed. This paper canvases various facets of the framework underlying the aviation/climate discourse with a view to offering recommendations which may facilitate the internalisation of increased climate ambition within the aviation sector. In this respect, it concentrates on the following: the backdrop to the aviation/climate change dialogue; the interaction between the Chicago Convention and the climate change regime; the International Civil Aviation Organisation's institutional setting and its involvement in climate issues; CORSIA; the opportunities and limitations offered by soft and hard regulation; the lessons offered by the European Union Emissions Trading Scheme; and the power of corporate social responsibility to overcome participation challenges. In light of the merits, flaws and missed opportunities of the current position, this paper concludes hard and soft regulation – i.e. a hardening of CORSIA and enhanced corporate social responsibility - should be utilised as complements to achieve the goal of increasing CORSIA's ambition and thus states' obligations whilst maintaining state participation. Overall, international aviation emissions are a complex challenge which must be met with a multi-faceted solution involving various actors including ICAO, UNFCCC, states, the industry itself and society.

Key words: aviation industry, climate change, CORSIA, ICAO

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I Introduction

“[I]f global aviation was a country, its emissions would be ranked seventh between Germany and South Korea on CO2 alone.”

- Transport & Environment¹

Climate change is unquestionably *the* principal environmental, political and social challenge of this century.² Of the various emissions sources, the international aviation sector is a top-ten global emitter. Thus, the sector's significant and growing contribution to the climate emergency presents a critical challenge that must be addressed. The current basket of measures aimed at doing so includes aircraft technology, operational improvements, sustainable aviation fuels (SAFs) and the Carbon Offsetting and Reduction Scheme (CORSIA). Notwithstanding the key role technological, operational and fuel improvements have to play in decarbonising the sector, this paper focuses primarily on CORSIA and the governance framework under which it operates. Whilst current measures, in their present form, are a positive step toward tackling international aviation emissions, they are “woefully insufficient” to decarbonise the industry by 2050.³ Moreover, the international governance framework is fundamentally flawed so as to hinder its ability to effectively regulate international aviation emissions. In light of current barriers and limitations, this paper aims to contribute key options for next steps on the roadmap towards decarbonisation.

Part II reveals the extent of aviation's contribution to climate change and balances this against its important role in socioeconomic development. In questioning the role of aviation as a luxury or a necessity, this part highlights international aviation as not only a technological and operational challenge, but also a societal and behavioural one. Part III seeks to give an overview and critique of the international framework governing international aviation emissions and the current measures aimed at regulating them and highlights key limitations that need overcoming to promote effective climate action within aviation. Part IV canvases the opportunities and limitations presented by soft and hard regulation, utilises Finnemore and Sikkink's conceptualisation of norms and case studies of the European Union Emissions Trading Scheme (EU ETS) and corporate social responsibility (CSR), for the purpose of

¹ Transport & Environment *Global Deal or No Deal? Your free guide to ICAO's 38th Triennial Assembly* (September, 2013) at 3.

² Liad Ortar *Climate Change and CSR: Can Voluntarism Pay?* (The College of Law and Business, Israel, 2014) at 3.

³ Climate Action Network and International Coalition for Sustainable Aviation *Contribution of the Global Aviation Sector to Achieving Paris Agreement Climate Objectives* (2 April 2018) at 3.

establishing a way forward for the future of international aviation. Based on the barriers identified and lessons offered by the case studies, Part V offers key next steps toward addressing the pivotal challenge of increasing CORSIA's ambition whilst maintaining state participation.

A 19-year period lapsed between the Kyoto Protocol's devolution to the International Civil Aviation Organisation (ICAO) tasking it with mitigating international aviation emissions, and the adoption of CORSIA. Hence, it is never too soon to search for "the design of a more substantive and climatically effective strategy for international aviation, albeit in parallel with the implementation of CORSIA and drawing on the experience of its evolution".⁴ This paper aims to avoid the too little, too late scenario - to wait for CORSIA's outcome before implementing more powerful mitigation action is nonsensical.⁵

II Aviation and Climate Change

The climate emergency can be attributed to human activities, particularly the widespread release of greenhouse gases (GHGs) from "multiple, diverse sources".⁶ Every nation, company, farm, household and individual releases some amount of GHGs, thus creating a "super-wicked problem".⁷ The consequences are profound and multifarious, impacting the economy, environment and human health.⁸ Irreversible damage is possible if temperatures rise to 1.5°C above pre-industrial levels,⁹ which is predicted to occur within the next 32 years.¹⁰ A temperature rise of approximately 1°C has already been reached, indicating the pressing need to counteract further rises.¹¹

⁴ Chris Lyle "Beyond the ICAO's CORSIA: Towards a More Climatically Effective Strategy for Mitigation of Civil-Aviation Emissions" (2018) *Climate Law* 104 at 119.

⁵ At 119.

⁶ Jacqueline Peel "Climate Change" in André Nollkaemper and Ilias Plakokefalos (eds) *The Practice of Shared Responsibility in International Law* (Cambridge University Press, 2017) 1009 at 1009.

⁷ At 1009.

⁸ David Hunter, James Salzman and Durwood Zaeckle *International Environmental Law and Policy* (5th ed, Foundation Press, New York, 2015) at 6.

⁹ Timothy M. Lenton and others "Climate Tipping Points - Too Risky to Bet Against" (2019) *Nature* 575 at 592.

¹⁰ Chapman Tripp "Sustainable Finance Forum: Legal Opinion 2019" (The Aotearoa Circle, online ed, New Zealand, 2019) at 6.

¹¹ United Nations Environment Programme *Emissions Gap Report 2020* (December 2020).

The current approach aimed at alleviating these effects consists of two corresponding patterns of action - adaptation and mitigation.¹² However, global efforts have so far failed to alter humanity's direction and decrease emissions.¹³

A Aviation's Contribution to Climate Change

Due to economic growth, globalisation and progressive liberalisation which have eliminated market barriers and reduced airfares, air travel has swiftly become more accessible, increasing demand and thus increasing the sector's emissions.¹⁴ Whilst the aviation industry itself prefers to stick to claims of two per cent, the Intergovernmental Panel on Climate Change (IPCC) posits international aviation contributes to 4.9 per cent of anthropogenic climate change when accounting for both CO₂ and non-CO₂¹⁵ emissions.¹⁶

Whilst 4.9 per cent may appear a minor contribution, this figure is more alarming when considering the fact approximately three per cent of the population fly regularly.¹⁷ Moreover, it is widely acknowledged this will rise given aviation is one of the fastest-growing GHG emissions sources.¹⁸ The IPCC predicts this could reach 15 per cent by 2050.¹⁹ To make matters worse, aircraft emissions are increasing rapidly (recent predictions indicate growth close to 300 per cent between 1990 and 2050)²⁰ as improving fuel efficiency fails to keep up with rapidly rising passenger numbers which are forecast to double in the next 20 years.²¹ This growth has

¹² Ortar, above n 2, at 6.

¹³ At 3.

¹⁴ Alejandro Piera Valdes *Greenhouse Gas Emissions from International Aviation: Legal and Challenges* (Eleven International Publishing, The Netherlands, 2015) at 12.

¹⁵ Alongside CO₂ emissions which accelerate global warming and ocean acidification, aviation also contributes to climate effects via various other processes including emissions of nitrogen oxides, water vapour and particulates, sulphur oxides, carbon monoxide, aerosols and precursor species, aerosol-cloud interactions and formation of contrail cirrus. See Marianne T. Lund and others "Emission metrics for quantifying regional climate impacts of aviation" (2017) 8 *Earth Syst. Dynam.* 547 at 547.

¹⁶ David Lee "Aviation and global climate change in the 21st century" (2009) 43 *Atmospheric Environment* 3520 at 3535.

¹⁷ Jocelyn Timperley "Should we give up flying for the sake of the climate?" BBC (19 February 2020) <<https://www.bbc.com/future/article/20200218-climate-change-how-to-cut-your-carbon-emissions-when-flying>>.

¹⁸ European Commission "Reducing emissions from aviation" <https://ec.europa.eu/clima/policies/transport/aviation_en>.

¹⁹ Joyce Penner and others "Executive Summary" in *Aviation and the Global Atmosphere: A Special Report of the Intergovernmental Panel on Climate Change* (Cambridge University Press, Cambridge, 1999).

²⁰ European Commission, above n 18, as cited in Markus W. Gehring and Cairo Robb "Sustainable Development and Emission Trading: The EU Perspective" in Tanveer Ahmad, Armand De Mestral and Paul Fitzgerald (eds) *Sustainable development, international aviation, and treaty implementation* (Cambridge University Press, Cambridge, 2018) 83 at 84.

²¹ Timperley, above n 17.

been categorised as mostly demand-led, establishing aviation emissions as not only a technological and operational challenge, but also a societal and behavioural one.

Whilst COVID-19 caused a sharp downturn in international travel, a temporary pause is not enough. Key challenges exist for the aviation sector's mitigation which depends on slower growth in sectoral activity by 2050 alongside efficiency improvements and SAFs.²² Although COVID-19 heralded significant uncertainty for the industry, sector representatives forecast aviation demand will return to pre-pandemic levels within two to three years, akin to recoveries following past pandemics and financial crises.²³ Nevertheless, the post-COVID era may see financial limitations making large investments in mitigation options like SAFs and electrification unaffordable.²⁴

B A luxury or a necessity?

Despite aviation's undeniable contribution to climate change, the industry emphasises this must be balanced against the important role it plays in socioeconomic development.²⁵ Indeed, aviation is a major driver of global economic growth, social and cultural development, promoting tourism, world trade, social connectivity, and employment.²⁶ Its economic significance is indisputable, representing approximately 7.5 per cent of the world's GDP.²⁷ Internationally, 3.5 billion passengers travelled a distance of almost 4 trillion miles in 2015 alone.²⁸ Of these passengers, 60 per cent flew internationally.²⁹ The global fleet consists of more than 26,000 aircrafts which are operated by over 1,000 commercial airlines and facilitated by almost 4,000 airports.³⁰ Moreover, the sector itself supports 65.5 million jobs.³¹

²² M. Sharmina and others "Decarbonising the critical sectors of aviation, shipping, road freight and industry to limit warming to 1.5-2°C" (2021) 21(4) *Climate Policy* 455 at 460.

²³ For example, quick recoveries occurred following SARS and MERS pandemics. See Sharmina and others, above n 22, at 456. See also International Civil Aviation Organisation "Effects of Novel Coronavirus (COVID-19) on Civil Aviation: Economic Impact Analysis" (Economic Development – Air Transport Bureau presentation, August 2021).

²⁴ Sharmina and others, above n 22, at 456.

²⁵ Valdes, above n 14, at 24.

²⁶ Lu Yang, Cindy Ngai and Wenze Lu "Changing trends of corporate social responsibility reporting in the world-leading airlines" (2020) 15(6) *PLoS ONE* 1 at 1.

²⁷ Valdes, above n 14, at 14.

²⁸ Michael P. Vandenbergh and Daniel J. Metzger "Private Governance Responses to Climate Change: The Case of Global Civil Aviation" (2018) 30(1) *Fordham Environmental Law Review* 62 at 67.

²⁹ At 67.

³⁰ At 67.

³¹ Air Transport Action Group "Social and economic benefits of aviation" <<https://www.atag.org/our-activities/social-and-economic-benefits-of-aviation.html>>.

As a catalyst for economic development and social interaction, the sector's multiplier effect is unequivocal.³² Restricting aviation would severely influence international trade, business and tourism.³³ For many nations, aviation constitutes their "main gateway to the world" providing connectivity and fostering international commerce.³⁴ Take New Zealand for example. As a geographically isolated island nation, air travel is the predominant mode of transport in and out.³⁵ New Zealand's economy is also heavily reliant on international tourism. Prior to COVID-19, this constituted New Zealand's largest export industry generating \$40.9 billion (NZD) or 20.1 per cent of foreign exchange earnings and employing 8.4 per cent of the national workforce.³⁶

On one approach, aviation's advantages appear to outweigh its negative climate impacts. However, ICAO's emphasis on a two per cent global footprint ignores the true picture and fails to adequately consider the inevitable negative impacts if responsible action is not taken.³⁷ If we afforded major cities and nations with a "dogmatic defense" for 'only two per cent' emissions this would preserve the status quo as every contribution would be negligible enough to ignore.³⁸ Such a situation bears resemblance to a prisoner's dilemma where "actors misleadingly justify their respective inactions with their net gains".³⁹ This downplaying of the need to act urgently is wholly irresponsible given the aviation sector is in fact "uniquely exposed to climate impacts presently and increasingly in the future".⁴⁰

It is hard to imagine our globalised world without aviation, but can we justify vindicating a top-ten global emitter for the sake of global prosperity? This paper contends not. Do we simply need to re-imagine a new normal? Indeed, following COVID-19, the post-2020 world may feasibly involve an increased virtual presence, reducing the need for air travel. Nevertheless, whether viewed as a luxury or a necessity, aviation undoubtedly "plays a vital role in

³² Valdes, above n 14, at 14.

³³ Heather L. Miller "Civil Aircraft Emissions and International Treaty Law" (1998) 63(4) *Journal of Air Law and Commerce* 697 at 702.

³⁴ Valdes, above n 14, at 14.

³⁵ Inga J. Smith and Craig J. Rodger "Carbon emission offsets for aviation-generated emissions due to international travel to and from New Zealand" (2009) 37 *Energy Policy* 3438 at 3439.

³⁶ New Zealand Tourism "About the tourism industry" (27 May 2020) <<https://www.tourismnewzealand.com/about/about-the-tourism-industry/>>.

³⁷ Valdes, above n 14, at 24.

³⁸ At 25.

³⁹ At 25.

⁴⁰ Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 2.

facilitating economic growth, particularly in developing countries”.⁴¹ This simply highlights the urgent need to decarbonise the sector and ensure it develops in a sustainable manner. The current measures aimed at achieving this are a positive step in the right direction but remain “woefully insufficient” to decarbonise the sector by 2050.⁴²

III The Current Position

Several models of soft and hard EU and international regulation directed at reducing air pollution exist⁴³ but until recently none regulated international aviation emissions.⁴⁴ This section will canvas the “historically complicated”⁴⁵ international framework governing international aviation emissions and the current measures aimed at regulating them. It will highlight the fact the framework is fundamentally flawed and whilst current measures are a positive step forward, they are critically inadequate.

A ICAO

At the heart of the international legal regime governing civil aviation is the Chicago Convention 1944 (the Convention), which was “designed to ensure the safe and orderly development of international civil aviation”⁴⁶ through the establishment of a constitutional framework for international aviation.⁴⁷ The Convention “enshrined the principle of state sovereignty as the cornerstone of the international system” and set up a United Nations specialised agency, ICAO - a multilateral body with decision-making powers governing industry standards.⁴⁸

⁴¹ Vandenberg and Metzger, above n 28, at 67.

⁴² Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 3.

⁴³ These include: the Stockholm Declaration 1972, the Geneva Convention 1979 and the Chicago Convention Annex No. 16.

⁴⁴ Paulina E. Sikorska “The need for legal regulation of global emissions from the aviation industry in the context of emerging aerospace vehicles” (2015) 1 International Comparative Jurisprudence 133 at 139.

⁴⁵ James Higham, Elisabeth Ellis and James Maclaurin “Tourist Aviation Emissions: A Problem for Collective Action” (2019) 58(4) Journal of Travel Research 535 at 540.

⁴⁶ Baine P. Kerr “Clear skies or turbulence ahead? The international civil aviation organization's obligation to mitigate climate change” (2020) 16(1) Utrecht Law Review 101 at 103. See also Convention on International Civil Aviation 15 UNTS 295 (opened for signature 7 December 1944, entered into force 30 June 1945).

⁴⁷ Vandenberg and Metzger, above n 28, at 87. See also Valdes, above n 14, at 86.

⁴⁸ Vicki Birchfield “Coercion with kid gloves? The European Union's role in shaping a global regulatory framework for aviation emissions” (2015) 22(9) Journal of European Public Policy 1276 at 1281.

Notably, ICAO's establishment came long before the aviation sector's association with environmental harm. Instead, its primary objective was "exclusively to create an equitable trading regime for aviation".⁴⁹ Despite not being an explicit goal of ICAO, article 2.2 of the Kyoto Protocol provided an implicit mandate giving ICAO a "core role" in GHG emissions reduction for developed states.⁵⁰ Given 70 per cent of the planet consists of oceans and attributing emissions from cross-border flights is difficult,⁵¹ international aviation emissions are incompatible with the principle of territoriality that governs reporting under the United Nations Framework Convention on Climate Change (UNFCCC).⁵² For this reason, under the UNFCCC, international aviation emissions are reported as 'Memo Items' whilst domestic aviation emissions make up part of national emissions.⁵³ During negotiations for the Kyoto Protocol, Contracting States failed to agree on principles governing the calculation and attribution of international aviation emissions to specific states. Consequently, Parties agreed in article 2.2 that they "shall pursue limitation or reduction of emissions of greenhouse gases ... working through the [ICAO] ...".⁵⁴

With 193 states now members to the Convention, it has almost universal membership.⁵⁵ The Convention grants the ICAO Council with quasi-legislative power to establish 'standards and recommended practices and procedures' (SARPs) for differing technical issues.⁵⁶ Despite ICAO's "impressive" technical work, creating a multitude of guidance material and recommendations for states, until recently there was no system implemented to reduce or limit emissions.⁵⁷ The cardinal bedrock of ICAO's carbon policy was adopted in 2013 during the 38th Assembly.⁵⁸ In doing so, ICAO undertook an international objective to increase fuel efficiency by two per cent annually and to stabilise international aviation emissions at 2020 levels. Industry growth post-2020 was to be carbon neutral.⁵⁹ ICAO's carbon neutral growth

⁴⁹ M. Staniland "Regulating aircraft emissions: leadership and market power" (2012) 19(7) *Journal of European Public Policy* 1006 at 1011.

⁵⁰ Birchfield, above n 48, at 1282.

⁵¹ Uwe Erling "International Aviation Emissions Under International Civil Aviation Organization's Global Market Based Measure: Ready for Offsetting?" (2017) 42(1) *Air & Space Law* 1 at 2.

⁵² At 2.

⁵³ At 2.

⁵⁴ Kyoto Protocol to the United Nations Framework Convention on Climate Change (opened for signature 16 March 1998, entered into force 16 February 2005), art 2.

⁵⁵ Vandenberg and Metzger, above n 28, at 88.

⁵⁶ Kerr, above n 46, at 104.

⁵⁷ Alejandro Piera Valdes "Getting to Global Cooperation: The ICAO and Climate Change" in Tanveer Ahmad, Armand De Mestral and Paul Fitzgerald (eds) *Sustainable development, international aviation, and treaty implementation* (Cambridge University Press, Cambridge, 2018) 247 at 263.

⁵⁸ International Civil Aviation Organisation GA Res A38-18 (2013).

⁵⁹ International Civil Aviation Organisation, above n 58.

scheme is founded on a ‘basket of measures’ focussed on four pillars of climate action: green aircraft technologies; operational measures for fuel consumption reduction; SAFs and the global market-based measure (MBM).⁶⁰

B The Paris Agreement

Following in the footsteps of the Kyoto Protocol, the 2015 Paris Agreement - “a critical turning point in the transition to a low carbon global economy”⁶¹ - accordingly omitted international aviation as well. Whilst the Agreement does facilitate national action on domestic aviation via Nationally Determined Contributions (NDCs), without confronting international aviation, the 1.5-2°C warming limit is increasingly unachievable. Hence, critical questions remain unanswered regarding how international aviation emissions mitigation will be accomplished and the “policy relationship between international aviation and national NDCs”.⁶²

C EU ETS

Dissatisfied with ICAO’s poor progress and international community reluctance, in 2012 the European Commission included all European and foreign aircraft operators using EU airports into its emissions trading scheme.⁶³ This constituted the first binding document to regulate GHG emissions from the aviation industry specifically.⁶⁴ However, this was met with intense international opposition challenging the scheme. Following “renewed signals” of ICAO action on a global MBM,⁶⁵ the scheme’s application to foreign aircraft operators was paused for a one-year period in November 2012.⁶⁶ This was later extended through to 2023 under the “stop the clock” measure.⁶⁷

⁶⁰ International Civil Aviation Organisation *Destination Green: The Next Chapter - 2019 Environmental Report* (2019) at 111.

⁶¹ Higham, Ellis and Maclaurin, above n 45, at 541.

⁶² At 541.

⁶³ Valdes, above n 14, at 3.

⁶⁴ Sikorska, above n 44, at 139.

⁶⁵ Gehring and Robb, above n 20, at 85.

⁶⁶ Valdes, above n 14, at 3.

⁶⁷ Thomson Reuters "EU agrees text of "stop the clock" aviation law (13 March 2013) <<https://www.reuters.com/article/eu-icao-idUSL6N0C4FFM20130312>>.

Meanwhile, as noted above, ICAO's 38th Assembly saw member states agree to generate a global MBM to regulate international aviation's GHG emissions.⁶⁸ CORSIA was adopted in October 2016.⁶⁹

D CORSIA

CORSIA represents a landmark decision marking the first global resolution to control emissions of an entire sector.⁷⁰ Its "modest" objective is to aid the industry in reaching its goal of making all international aviation growth post-2020 carbon-neutral by phasing in a system to offset emissions beyond this level, bar where special circumstances make the requirement too burdensome.⁷¹ The scheme's function is "to complement a broader package of measures to achieve the global aspirational goal" of capping civil aviation emissions at 2020 levels, and to do so without inflicting an "inappropriate economic burden on international aviation".⁷² This resolution was supported "overwhelmingly" by ICAO members,⁷³ but Russia and India lodged considerable doubts.⁷⁴ Nevertheless, 104 states have agreed to participate at this stage.⁷⁵

In theory, a carbon offsetting scheme uses carbon credits - "a tradeable certificate ... representing the right to emit one ton of carbon dioxide or its equivalent" - for compliance.⁷⁶ Carbon credits are obtainable from GHG reduction projects that yield measurable emissions reductions.⁷⁷ Under CORSIA, emissions were originally to be compared to the average level of CO₂ emitted by international aviation between 2019 and 2020. Following the effects of COVID-19, ICAO Council resolved that including 2020 figures in the baseline would "cause an inappropriate economic burden ... and contravene the spirit of ... CORSIA ..." and

⁶⁸ Valdes, above n 14, at 3.

⁶⁹ Convention on International Civil Aviation, above n 46, Annex 16, Volume IV.

⁷⁰ Erling, above n 51, at 1.

⁷¹ Vandenberg and Metzger, above n 28, at 89.

⁷² International Civil Aviation Organisation GA Res A39-3 (2016) at [4].

⁷³ ICAO members in support of CORSIA include Brazil, China, all African states and the majority of other developing nations.

⁷⁴ Erling, above n 51, at 4.

⁷⁵ International Civil Aviation Organisation "Over 100 States now participate in ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)" (6 July 2021) <<https://www.icao.int/Newsroom/Pages/Over-100-States-now-participate-in-ICAOs-Carbon-Offsetting-and-Reduction-Scheme-for-International-Aviation-CORSIA.aspx>>.

⁷⁶ Janina Scheelhaase and others "EU ETS versus CORSIA - A critical assessment of two approaches to limit air transport's CO₂ emissions by market-based measures" (2018) 67 *Journal of Air Transport Management* 55 at 57.

⁷⁷ At 57.

accordingly amended the baseline to include 2019 emissions only.⁷⁸ Such a move arguably sets a negative precedent, by further weakening ambition and succumbing to industry pressure. Nevertheless, from January 2021, where this baseline is exceeded, the sector is required to offset that amount.

CORSIA reconciles the UNFCCC's common but differentiated responsibilities principle (CBDR) and the Convention's non-discrimination principle⁷⁹ via its phased implementation and route-based strategy.⁸⁰ The scheme is to be executed in three-year compliance cycles starting with the voluntary pilot in 2021 to 2023, and first phase in 2024 to 2027 whereby it applies to routes between states who have voluntarily participated.⁸¹ In the second phase beginning in 2027, the program becomes compulsory for member states whose “share of aviation activities accounts for more than 0.5 per cent of total international revenue tonne kilometre (RTK), based on 2018 RTK data, or ... whose cumulative share in the list of states from the highest to the lowest amount of RTKs reaches 90% of total RTK”.⁸² Unless they opt in, Least Developed Countries, Small Island Developing States and Landlocked Developing Countries are exempt.⁸³

CORSIA applies a dynamic approach, combining sectoral and individual approaches to allocation of offset requirements whereby allocation is firstly sectoral and then individual.⁸⁴ An individual approach means an airline must offset “only its own growth in CO₂ emissions compared to [2019] levels, irrespective of the general development of emissions of other carriers”.⁸⁵ This is likely more burdensome for smaller airlines. Under the sectoral approach each airline is responsible for a proportion of industry growth relative to its total CO₂ emissions

⁷⁸ Jonathan D. Cocker "International: New baseline for CORSIA and proposals for integration within the EU and the UK ETS" (18 August 2020) Environmental Law Insights <<https://www.environmentlawinsights.com/2020/08/18/744/>>.

⁷⁹ The ICAO's mandate created a serious challenge as the UNFCCC's fundamental principle of CBDR is irreconcilable with the Chicago Convention's non-discrimination principle. Under the UNFCCC regime, only developed states have quantified emissions reduction commitments. Yet, in the international aviation context, this would result in, for example, Germany being required to reduce its aviation emissions whilst the United Arab Emirates - “one of the fastest-growing aviation markets and currently home to some of the world's most successful and fastest-growing air carriers” - would have no such requirement. Thus, in the international aviation context, based on the CBDR principle, developing states contend they should not be subject to emission reduction obligations whilst developed states assert CBDR should not apply in this context as it infringes the non-discrimination principle and causes market distortions. See Valdes, above n 14, at 2 and 46.

⁸⁰ Erling, above n 51, at 7.

⁸¹ International Civil Aviation Organisation, above n 72, at [9(a)] and [9(b)].

⁸² Erling, above n 51 at 6. See also International Civil Aviation Organisation, above n 72, at [9(e)].

⁸³ International Civil Aviation Organisation, above n 72, at [9(e)].

⁸⁴ International Civil Aviation Organisation, above n 72, at [11]. See also Erling, above n 51, at 8.

⁸⁵ Erling, above n 51, at 8.

in international aviation.⁸⁶ This however, is said to fail “to incentivise individual operators to make ambitious cuts in their emissions”.⁸⁷

The primary challenge faced by an offset scheme is “to maintain its environmental integrity and credibility” so emissions reductions provided by offsets must therefore deliver real, verifiable and permanent CO₂ reduction.⁸⁸ As evidenced by the Kyoto Protocol’s Joint Implementation and Clean Development Mechanism (CDM), “offset crediting is a tricky business” given carbon credits constitute a legal fiction.⁸⁹ This is made more difficult by the fact double-counting is possible under both CORSIA and the Paris Agreement.⁹⁰ CORSIA does not explicitly classify what offsets will fulfil the program but comments “emissions units generated from mechanisms established under the UNFCCC and the Paris Agreement are eligible for use in CORSIA”.⁹¹ It therefore remains to be seen whether the governance structure will be adequately robust to protect the scheme’s environmental integrity.⁹²

In terms of review, ICAO has implemented a monitoring, reporting and verification system and a central registry. Further, the resolution provides for review by ICAO on a three-year basis beginning in 2022 to assess its “impact on aviation growth, how the scheme is contributing to the Paris Agreement’s long-term temperature goals and whether design elements need changing”.⁹³ A further special review in 2032 is planned to direct the scheme’s future beyond 2035.⁹⁴

Alongside CORSIA, ICAO has also adopted a CO₂ standard applicable to new commercial and business aircrafts produced post-2028.⁹⁵ Unless designs are modified accordingly, any aircrafts in production after 1 January 2028 which fail to meet the standard cannot be produced.⁹⁶

⁸⁶ Erling, above n 51, at 8.

⁸⁷ At 8.

⁸⁸ At 8-9.

⁸⁹ At 9.

⁹⁰ International Civil Aviation Organisation, above n 72, at [21]. See also Erling, above n 51, at 9.

⁹¹ International Civil Aviation Organisation, above n 72, at [21].

⁹² Erling, above n 51, at 9.

⁹³ International Civil Aviation Organisation, above n 72, at [9(g)]. See also Erling, above n 51, at 10.

⁹⁴ International Civil Aviation Organisation, above n 72, at [18(c)].

⁹⁵ Convention on International Civil Aviation, above n 46, Annex 16, Volume III.

⁹⁶ International Civil Aviation Organisation "ICAO Council adopts new CO₂ emissions standard for aircraft" (6 March 2017) <<https://www.icao.int/newsroom/pages/icao-council-adopts-new-co2-emissions-standard-for-aircraft.aspx>>.

E Limitations

1 ICAO

Compared to the Paris Agreement's bottom-up model – a model more effective at encouraging participation - centred on individual country contributions, ICAO's principal role is the “setting and auditing of global safety and security standards” which necessitates a top-down approach.⁹⁷ No precedent exists for a bottom-up method, which is more sensible for economic matters, and ICAO's provisions apply equally to all member states.⁹⁸ Treating international aviation emissions via ICAO is fundamentally flawed in that it lacks a directly identifiable national commitment. Instead, there is merely a global ‘sector-determined’ contribution meaning the contribution of international aviation emissions does not bear a high profile nationally.⁹⁹ This serves to dilute potential action and treats international aviation in a silo as opposed to the context of state-specific circumstances and relative economic contribution of aviation.¹⁰⁰

Furthermore, although UNFCCC membership is relatively similar to ICAO membership, the UNFCCC's mandate is specifically to reduce GHG concentrations in the atmosphere whereas ICAO's is more generally aimed at protecting and promoting international aviation.¹⁰¹ Ergo, ICAO's success pertains almost totally to air navigation, safety and security matters.¹⁰² ICAO's multiple attempts to reach a multilateral aviation agreement on economic matters have been unsuccessful prompting the “extensive bilateral regulatory process (with some regional regulation) for air services that remains in place today”.¹⁰³ Moreover, ICAO has always acknowledged every state will progress at its own pace relative to individual circumstances and their role on economic policy matters is “to provide analysis and guidance, not to prescribe”.¹⁰⁴

⁹⁷ Lyle, above n 4, at 106.

⁹⁸ At 106.

⁹⁹ At 106.

¹⁰⁰ At 106.

¹⁰¹ At 106.

¹⁰² At 106.

¹⁰³ At 107.

¹⁰⁴ At 107.

ICAO's 'mandate' to control aviation emissions is denoted as "weak, or more realistically, nonexistent".¹⁰⁵ In practice, article 2 of the Kyoto Protocol is regarded as an "implicit mandate bestowed upon [ICAO] by the [UNFCCC] regime" to manage aviation emissions.¹⁰⁶ Whilst evidently the Kyoto Protocol triggers ICAO's connection to the climate change regime, this mandate lacks clarity, enabling states to "interpret it in furtherance of parochial national interests".¹⁰⁷ Furthermore, the Kyoto Protocol failed to provide direction on how this implicit mandate ought to be executed with no guidance on limitations or exceptions, nor time frames for reduction of international aviation emissions.¹⁰⁸ Whilst ICAO boasts "legislative power to toughen the Convention's annexes", this is rendered nugatory given states that fail to abide by SARPs attract no sanctions provided they give notice to ICAO.¹⁰⁹

Overall, whilst the ICAO's introduction consolidated all international civil aviation affairs into a single agency, it did not unify the law on emissions. Without a legal mandate to create hard or soft regulations on the subject of emissions, the ICAO cannot harmonise the industry.¹¹⁰

2 CORSIA

CORSIA has been subjected to strident criticism, perhaps most vitally that it lacks ambition. Unless stretched beyond 2035, CORSIA will only cover 6 per cent of forecast CO₂ emissions from international aviation between 2015 and 2050.¹¹¹ Importantly, it also ignores the various non-CO₂ aviation emissions.¹¹² CORSIA's target of freezing emissions at 2020 levels may act as a disincentive for the industry to reduce its emissions any further beyond this level.¹¹³ It appears detrimental that states are not pressed to be more ambitious, even voluntarily.¹¹⁴ This differs from the Paris Agreement's encouragement of commitments via NDCs and of higher

¹⁰⁵ Brian F. Havel and Gabriel S. Sanchez "Toward an international aviation emissions agreement" (2012) 36(2) Harvard Environmental Law Review 351 at 360.

¹⁰⁶ Valdes, above n 14, at 2.

¹⁰⁷ At 2.

¹⁰⁸ At 45.

¹⁰⁹ Havel and Sanchez, above n 105, at 360.

¹¹⁰ Sikorska, above n 44, at 137.

¹¹¹ Jocelyn Timperley "Corsia: The UN's plan to 'offset' growth in aviation emissions" (4 February 2019) Carbon Brief <<https://www.carbonbrief.org/corsia-un-plan-to-offset-growth-in-aviation-emissions-after-2020>>.

¹¹² Jörgen Larsson and others "International and national climate policies for aviation: a review" (2019) 19(6) Climate Policy 787 at 793.

¹¹³ Vandenberg and Metzger, above n 28, at 91.

¹¹⁴ Lyle, above n 4, at 113.

ambition in Article 6.¹¹⁵ CORSIA's voluntary participation until 2027 also acts as an additional barrier.¹¹⁶

Moreover, whilst CORSIA's objective to freeze participating states' aviation emissions at 2020 levels is somewhat beneficial, it is deficient if the aim is for the industry to "bear its proportionate share of the reductions necessary to avoid a substantial risk of exceeding the [two] degree goal included in the Paris Agreement, much less than 1.5 degree aspiration".¹¹⁷ In fact, the 1.5°C goal requires global emissions to have peaked in 2020 but to then sharply decline as opposed to remain steady at 2020 levels.¹¹⁸ Hence, inherent in CORSIA's framework is an assumption that other sectors will be responsible for reducing emissions at a greater level than international aviation and thereby the industry will constitute a progressively greater portion of emissions.¹¹⁹ Consequently, ICAO's opting for an offsetting scheme appears a short-term solution to buy time for long-term advances towards a carbon-neutral aviation industry.¹²⁰

More generally, there is growing doubt regarding the efficacy of offsetting. Historically, offset projects are known for "overpromising and underdelivering".¹²¹ For example, the United Nations' REDD+ program and the Kyoto Protocol's CDM have performed poorly with insufficient meaningful emissions reductions.¹²² Moreover, a European Commission study found 85 per cent of offset projects implemented by the EU under the CDM were unsuccessful in reducing emissions.¹²³ Christiana Figueres, former UNFCCC Executive Secretary, notes "offsetting is not a silver bullet, nor an alternative to the deep and decisive emission reductions that economies and communities have to make now and into the future".¹²⁴ Offsets are risky in that they have the potential to lead to beliefs that behavioural change is no longer needed, causing "irreversibility in consumption and production patterns".¹²⁵

¹¹⁵ Lyle, above n 4, at 113.

¹¹⁶ Vandenberg and Metzger, above n 28, at 91.

¹¹⁷ At 91.

¹¹⁸ At 91.

¹¹⁹ At 91.

¹²⁰ At 91.

¹²¹ Umair Irfan "Can you really negate your carbon emissions? Carbon offsets, explained." (27 February 2020) Vox <<https://www.vox.com/2020/2/27/20994118/carbon-offset-climate-change-net-zero-neutral-emissions>>.

¹²² Irfan, above n 121.

¹²³ Lyle, above n 4, at 115.

¹²⁴ United Nations Climate Change Secretariat "Purchasing of Offsets to Generate Funds for Vulnerable Communities" (press release, 9 July 2014).

¹²⁵ Lyle, above n 4, at 115.

Furthermore, key foundational challenges relating to ICAO further hamper CORSIA's effectiveness. Importantly, ICAO lacks an enforcement mechanism.¹²⁶ ICAO resolutions are not automatically binding meaning they must be enacted via "later-promulgated standards".¹²⁷ Consequently, this creates multiple enforcement challenges. Firstly, states may be reluctant to enforce obligations within their own nation where other states are not doing so.¹²⁸ Secondly, states' varied enforcement capacities could lead to differing enforcement outcomes regardless of intentions to apply standards uniformly.¹²⁹ Thirdly, if a state decides it is simply too burdensome or impractical to adhere to an ICAO standard they can easily opt not to, there is no categorical requirement to comply with standards.¹³⁰

Based on the International Air Transport Association's (IATA) cost analysis, over the past 10 years, airlines have been able to weather oil-price volatility over 15 times the forecast offsetting cost in 2030 (\$2.6 (USD) rise in jet-fuel price per barrel).¹³¹ Thus indicating CORSIA may have a weak effect on aviation.¹³²

Whilst CORSIA is a positive step toward an enhanced international governance regime, many technical details remain undefined, its objective is "modest at best" and not likely to be reached until 2027 and will be vulnerable to significant enforcement obstacles.¹³³

3 Industry Lobbyists

The aviation industry has *seemingly* been undertaking positive action to address its climate impacts over the last decade. As of 2015, the industry had: circumvented 8.5 billion tonnes of CO₂ emissions since 1990; halved fuel use per tonne kilometre; and introduced 12 new fuel-efficient aircraft types and engines.¹³⁴ However, the industry itself poses a significant threat to effective action via its strong opposition to climate policy. For example, the EU is a world

¹²⁶ Vandenberg and Metzger, above n 28, at 92.

¹²⁷ At 92.

¹²⁸ Alejandro Piera Valdes "Designing the Legal Form of A Global Aviation Market Based Measure" (2016) 10 Carbon & Climate L. Rev. 144 at 145.

¹²⁹ At 145.

¹³⁰ Pamela Campos "Compliance Tools for a Global Market Based Measure for International Aviation" (2016) 10 Carbon & Climate L. Rev. 153 at 157.

¹³¹ Lyle, above n 4, at 119.

¹³² At 119.

¹³³ Vandenberg and Metzger, above n 28, at 92.

¹³⁴ Air Transport Action Group *The Aviation Sector's Climate Action Framework* (November 2015) at 18.

leader in climate action but its efforts are being significantly hampered by lobbying European airlines led by four of the biggest emitters alongside IATA and Airlines for Europe.¹³⁵ EU industry actors have sought to avoid direct obligations on themselves by giving "high-level support for net-zero EU aviation emissions by 2050 while opposing specific national and EU-level climate regulations".¹³⁶ Moreover, at a global level, in light of COVID-19, lobbying has only increased whereby IATA warned of withdrawals from CORSIA unless changes were made which some commentators characterised as an attempt to "dodge their obligations".¹³⁷ Given these attempts were successful in adjusting CORSIA's baseline, further watering it down, this illustrates the power the industry holds and signals the need for solutions aimed at defeating this strategic opposition to regulation by the sector.

Undeniably, international aviation is a "catalytic force" fostering economic and social development and facilitating global connectivity.¹³⁸ However, its steady growth simultaneously presents serious environmental challenges.¹³⁹ Evidently, the current regime remains flawed with critical limitations that need overcoming, particularly given aviation's projected future growth.¹⁴⁰

Part IV canvases the opportunities and limitations presented by soft and hard regulation for the purpose of establishing a way forward for the future of international aviation.

IV Hard vs. Soft: Determining An Effectual Way Forward

In the international context, laws and regulations can be categorised as hard or soft. Hard law constitutes "binding law and instruments that create precise and uniform rules with a clear and predictable enforcement mechanism" such as treaties, conventions and international

¹³⁵ The four European airlines with the largest CO₂ emissions in 2019 include: Air France-KLM, International Airlines Group, Lufthansa and Ryanair.

¹³⁶ Influence Map "The Aviation Industry and European Climate Policy" (June 2021) < <https://influencemap.org/report/Aviation-Industry-Lobbying-European-Climate-Policy-131378131d9503b4d32b365e54756351>>.

¹³⁷ Gwyn Topham and Fiona Harvey "Airlines lobby to rewrite carbon deal in light of coronavirus" (8 April 2020) The Guardian < <https://www.theguardian.com/business/2020/apr/08/airlines-lobby-to-rewrite-carbon-deal-due-to-coronavirus>>.

¹³⁸ Valdes, above n 14, at 39.

¹³⁹ At 39.

¹⁴⁰ At 39.

customs.¹⁴¹ Conversely, soft law commonly denotes "any international instrument other than a treaty containing principles, norms, standards or other statements of expected behaviour" such as declarations, guidelines, action plans, codes of practice and model laws.¹⁴² Based on these definitions, an assessment can be made of ICAO instruments.

Volumes II and III of Annex 16 to the Convention contain the emissions standards for international civil aviation. Volume IV contains CORSIA. Whilst the provisions of the Convention are legally binding, the annexes are not.¹⁴³ However, annexes may be considered *de facto* hard law (as distinct from *de jure* which would be more effective in reducing emissions) thus requiring Contracting States' compliance.¹⁴⁴ In contrast, ICAO Assembly Resolutions constitute soft instruments given they are more akin to social norms as opposed to law *per se*.¹⁴⁵ In a more general sense, CORSIA can be considered soft law, particularly in the pilot and first phase, given the lack of enforcement mechanisms meaning there is room for states to resist obligations.

In this section, an assessment of soft and hard regulation is undertaken through the respective lenses of CSR and the EU ETS. Through the paradigm of hard and soft law, this section aims to assess the opportunities and limitations they offer to inform key considerations when looking to improve the current regime regulating international aviation emissions.

A Why opt for hard or soft regulation?

Contrary to the rigid definitions utilised above, in reality, international instruments exist on a spectrum from hard to soft. Where a particular instrument sits depends on the combined level of obligation (how legally binding it is), precision (how clear the requirements are) and

¹⁴¹ Min Yan "Corporate Social Responsibility *versus* Shareholder Value Maximization: Through the Lens of Hard and Soft Law" (2019) 40(1) *Northwestern Journal of International Law & Business* 47 at 50. See also Sikorska, above n 44, at 134.

¹⁴² Dinah Shelton "International Law and Relative Normativity" in Malcolm D. Evans (ed) *International Law* (3rd ed, Oxford University Press, New York, 2010) 141 at 165 as cited in Yan, above n 141, at 50. See also Sikorska, above n 44, at 134.

¹⁴³ Md Tanveer Ahmad "Global Civil Aviation Emissions Standards: From Noise to Greener Fuels" in Tanveer Ahmad, Armand De Mestral and Paul Fitzgerald (eds) *Sustainable development, international aviation, and treaty implementation* (Cambridge University Press, Cambridge, 2018) 32 at 38.

¹⁴⁴ At 41.

¹⁴⁵ At 42.

delegation (the level of authority given to third parties to implement, interpret and adjudicate the rules).¹⁴⁶ So when is it beneficial to be on either end of the spectrum?

1 Hard law

With clarity comes certainty meaning clear, binding instruments improves parties' confidence and can extend the scope of transactions to the longer-term.¹⁴⁷ Hard law also enhances the credibility of state commitments due to heightened costs of non-compliance both legally and reputationally.¹⁴⁸ Such instruments also reinforce commitments by allowing for interpretation and expansion of legal commitments over time via delegation to third parties or other mechanisms.¹⁴⁹ Moreover, hard law enhances states' ability to monitor and enforce commitments.¹⁵⁰ Based on this, hard law is most useful where "the benefits of cooperation are great" and the "potential for opportunism and its costs are high".¹⁵¹ Monitoring and enforcement mechanisms can be implemented to manage opportunism risks.¹⁵²

Nevertheless, such instruments do come at the cost of state sovereignty which can cause lengthy and thus costly bargaining periods or lead to states being unwilling to participate in the face of legally binding commitments.¹⁵³ In addition, despite the benefits of clarity, hard law can be too rigid making it difficult to adjust in light of changing circumstances which may further hinder consensus.¹⁵⁴

2 Soft law

Conversely, soft law instruments are comparatively more flexible, allowing better management of heterogeneous preferences, priorities and capacities as well as changing circumstances and

¹⁴⁶ Gregory Shaffer and Mark A. Pollack "Hard vs. Soft Law: Alternatives, Complements and Antagonists in International Governance" (2009) 94(3) *Minnesota Law Review* 706 at 714.

¹⁴⁷ Future Learn "From hard law to soft law: choosing along a continuum" <<https://www.futurelearn.com/info/courses/global-governance/0/steps/120887>>.

¹⁴⁸ Shaffer and Pollack, above n 146, at 717-718.

¹⁴⁹ At 718.

¹⁵⁰ At 718.

¹⁵¹ Kenneth Abbott and Duncan Snidal "Hard and Soft Law in International Governance" (2000) 54(3) *International Organization* 421 at 429.

¹⁵² Shaffer and Pollack, above n 146, at 718.

¹⁵³ At 717-718.

¹⁵⁴ At 717-718.

uncertainties.¹⁵⁵ Negotiating soft law is also significantly easier and less costly. Most importantly, soft law infringes less on state sovereignty and often stimulates greater ambition and state cooperation.¹⁵⁶ However, akin to hard law, disadvantages exist. Such instruments are often condemned for their "relative obscurity, since they can remove law-making from democratic oversight".¹⁵⁷ Further, they may fail to achieve the desired effect given they generate minor or no legal obligation.

Overall, sceptics often assert soft law instruments are ineffective as they "[lack] teeth" and consequently are "simply symbolic".¹⁵⁸ However, it may be mistaken to exclusively conflate hard law with effectiveness. Compliance with hard law instruments achieves nothing if the obligations create no policy change.¹⁵⁹ Indeed, soft law "can be more effective in practice than many formally binding treaties".¹⁶⁰

3 Aviation context

Whilst it ought to be in the common interest of all relevant parties to address aviation emissions, assuming all airlines and states would be on the same page on this topic is insensible. Instead, conflicting perspectives have existed regarding "whether and how" to regulate emissions and as discussed above, unwillingness to be subjected to binding regulation has served to weaken current efforts.¹⁶¹ Regulation of the aviation industry's emissions is a prime example of the economisation and politicisation of law which serves to hamper the effectiveness of any efforts.¹⁶² Further, developed and developing states have differing perspectives on effective and equitable regulation. Whilst developed states desire a single uniform framework, developing states oppose regulations obligating them to reduce emissions given their lesser contribution to them.¹⁶³ Thus, harmonisation has been difficult in this context. Whilst soft instruments often provide a useful alternative in light of this context, allowing states and airlines further manoeuvrability around obligations is arguably undesirable given the imminent

¹⁵⁵ Future Learn, above n 147.

¹⁵⁶ Shaffer and Pollack, above n 146, at 719.

¹⁵⁷ Gregory Shaffer and Mark A. Pollack "Hard vs. Soft Law: Alternatives, Complements and Antagonists in International Governance" (Draft Essay, 31 January, 2009) at 22.

¹⁵⁸ At 23.

¹⁵⁹ At 23.

¹⁶⁰ At 24.

¹⁶¹ Sikorska, above n 44, at 137.

¹⁶² At 134.

¹⁶³ At 134.

and fast-growing aviation climate impacts. Hence, the tension between choosing either form of law is particularly apparent in relation to regulating international aviation emissions.¹⁶⁴

Looking ahead, CORSIA requires strengthening if it is to be remotely effective. Further, the international governance framework requires amendment to strengthen its mandate and provide enforcement mechanisms. However, with such goals in mind, it is important to consider the potential implications of any hardening of regulation. Hard law is arguably incompatible with the aviation sector given it is especially problematic where: "it presupposes a fixed condition when situations of uncertainty demand constant experimentation and adjustment, where it requires uniformity when a tolerance of national diversity is needed, and where it is difficult to change when frequent change may be essential".¹⁶⁵ Conversely, soft law can be extremely beneficial in this context as it can unite a wide and diverse array of participants "in a process that over time permits them to gain trust, leading to harder obligations in the future".¹⁶⁶ Braithwaite and Drahos summarised this thinking stating, "[t]he idea here, supported by research evidence, is that concern, norms and capacity build faster when they are not induced by threat. It is best to introduce threat only after the progress that can be made without it has been secured".¹⁶⁷ Hence, perhaps CORSIA i.e. soft regulation, is the starting point, albeit a weak one, the aviation industry needed. However, as this paper aims to avoid the wait-and-see position, the following sections will explore key takeaways from the EU ETS and assess the potential efficacy of utilising CSR as a complementary soft regulatory measure to enhance action.

B Case Study: EU ETS

A comprehensive summary of the EU ETS is beyond the scope of this paper. However, this section will give a brief overview and analyse its implications in relation to CORSIA.

The EU ETS is a cap-and-trade scheme, as distinct from an offsetting scheme, whereby an emission cap restricts the level of GHGs EU organisations can emit.¹⁶⁸ Those wanting to

¹⁶⁴ Sikorska, above n 44, at 137.

¹⁶⁵ Shaffer and Pollack, above n 146, at 719.

¹⁶⁶ Shaffer and Pollack, above n 157, at 22.

¹⁶⁷ John Braithwaite and Peter Drahos *Global Business Regulation* (Cambridge University Press, Cambridge, 2000) at 295.

¹⁶⁸ Tobias Eriksson "EU ETS vs. CORSIA: A neoliberal institutionalist study of European emission reduction policy" (Master in European Studies Thesis, University of Gothenburg, 2019) at 7.

exceed this cap must purchase allowances from organisations emitting below the cap or decrease their production.¹⁶⁹ Following a lack of movement regarding aviation emissions, Directive 2008/101/EC incorporated aviation into the scheme from 2012.¹⁷⁰ Between 2013 and 2020, the total allowances given to aircraft operators was to be restricted to "95 per cent of the average historical aviation emissions of ... 2004-2006".¹⁷¹ An aircraft would be subjected to a "fine of 100 Euro per ton CO₂ emissions and also under an obligation to return the exceeding emission as mandated within the EU ETS".¹⁷² If the fine was ignored, the member state involved could prompt the EU Commission to ban the EU operation of the airline.¹⁷³ As the first "binding, although European, piece of legislation that includes emissions from the aviation industry",¹⁷⁴ this constitutes hard law based on the above criteria. Originally, the EU resolved to include all flights taking off from or landing in the European Economic Area, thus disregarding nationality.¹⁷⁵ Whilst reflective of the EU's desire to "more effectively tackle transboundary air pollution", this was met with severe global dissent.¹⁷⁶ Consequently, political implications led to the "stop the clock" measure which reduced the scheme's scope to intra-EU flights only, removing coverage of intercontinental flights.¹⁷⁷

The scheme was primarily questioned based on: its extraterritorial nature; its potential inconsistency with various international accords including the Convention, the Kyoto Protocol and the Open Skies Agreement; and its potential inconsistency with the World Trade Organisation rules.¹⁷⁸ In fact, the opposition from the industry was so strong, claims of illegality were heard by the Court of Justice of the European Union (CJEU) in *Air Transport Association of America*.¹⁷⁹ Whilst the CJEU did not find the extended version of the scheme

¹⁶⁹ European Commission "EU Emissions Trading System (EU ETS)" <
https://ec.europa.eu/clima/policies/ets_en>.

¹⁷⁰ Sikorska, above n 44, at 134.

¹⁷¹ Scheelhaase and others, above n 76, at 56.

¹⁷² European Commission Directive 2008/101/EC, art 16(3) as cited in Ridha Aditya Nugraha "Preserving the Environment within the ASEAN Skies: Lessons from the European Union Emissions Trading Scheme" (2018) 4(1) *Hasanuddin Law Review* 15 at 17.

¹⁷³ Nugraha, above n 172, at 17.

¹⁷⁴ Sikorska, above n 44, at 134.

¹⁷⁵ Eriksson, above n 168, at 7.

¹⁷⁶ Sikorska, above n 44, at 139.

¹⁷⁷ European Parliament "Aviation emissions: MEPs reach deal with Council" (19 October 2017) <
<https://www.europarl.europa.eu/news/mt/press-room/20171019IPR86417/aviation-emissions-meps-reach-deal-with-council>>.

¹⁷⁸ Nicole De Paula Domingos "Fighting climate change in the air: lessons from the EU directive on global aviation" (2012) 55 *Rev. Bras. Polít. Int.* 70 at 77-78.

¹⁷⁹ Case C-366/10 *Air Transport Association of America, American Airlines, Inc, Continental Airlines, Inc, United Airlines, Inc v. The Secretary of State for Energy and Climate Change* [2011] ECR I-13755.

contravened international law,¹⁸⁰ political and economic pressures from around the globe were sufficient to pressure the EU to limit the scope of the scheme. Whilst CORSIA will not be subject to these challenges given the EU is distinct from the ICAO in that it is a supranational actor, this does highlight the power of the industry and raises important questions for the purposes of this paper.

When comparing CORSIA with the EU ETS, key differences in geographical scope and environmental ambition exist. Whilst the EU ETS imposes a CO₂ mitigation obligation to all emissions above the cap i.e. 95 per cent of 2004-2006 average emissions, CORSIA only requires post-2020 emission growth on routes between participating states to be mitigated via the purchase of offsets.¹⁸¹ Given the EU ETS as originally intended was more ambitious and thus created greater obligations for aircrafts when compared with CORSIA, can we expect this same pushback in response to a strengthened CORSIA? How do we reconcile the clear need to enhance CORSIA's ambition and enforceability with this potential for pushback from the industry given the EU ETS experience? Key lessons from the EU ETS should inform any future efforts.

Importantly, the EU ETS failed to provoke norm cascading. The concept of norms is significant to this discussion given the gradual mainstreaming of climate change worldwide means the "legal framework for climate change mitigation is no longer based solely on the multilateral legal framework under the UNFCCC and the Kyoto Protocol, but also on norms emanating from multiple and partly overlapping international, regional, national, sub-national and transnational sources of legal authority".¹⁸² Finnemore and Sikkink describe international norms as a "set of standards for the appropriate behaviour of states".¹⁸³ Norms influence behaviour by "placing heavy reliance on interests, sanctions, and incentive structures".¹⁸⁴ To alter an actor's behaviour, Bodansky suggests "we need to change their incentive structure by giving them an interest in engaging in environmentally sound behaviour".¹⁸⁵ Norm cascading

¹⁸⁰ Case C-366/10, above n 179, at [61] and [124].

¹⁸¹ Scheelhaase and others, above n 76, at 58.

¹⁸² Kati Kulovesi "Addressing Sectoral Emissions outside the United Nations Framework Convention on Climate Change: What Roles for Multilateralism, Minilateralism and Unilateralism?" (2012) 21(3) *Review of European Community & International Environmental Law* 193 at 201.

¹⁸³ Martha Finnemore and Kathryn Sikkink "International Norm Dynamics and Political Change" (1998) 52(4) *International Organisation* 887 at 893.

¹⁸⁴ Valdes, above n 14, at 255.

¹⁸⁵ Daniel Bodansky *The Art and Craft of International Environmental Law* (Harvard University Press, Cambridge, 2010) at 46.

is stage two in the norm life cycle which consists of norm emergence,¹⁸⁶ norm cascading¹⁸⁷ and norm internalisation.¹⁸⁸ An assessment of the EU ETS reveals there are various reasons for this failure to provoke norm cascading.

Firstly, the European Commission failed to adequately communicate how the scheme would operate in practice, meaning opponents misunderstood its function leaving it vulnerable to exploitation given it was easily depicted as a tax or revenue-generating mechanism.¹⁸⁹ This meant airlines also struggled to maintain involvement and understand the proposed norm change.¹⁹⁰ Secondly, the European Commission was also unaccommodating to non-EU actors. International aviation was simply integrated into a Eurocentric scheme which had minimal, if any, contemplation of the "particularities of the sector".¹⁹¹ Many states, particularly developing states, could not see any value in participating and no incentive structure existed to influence them into doing so. Overall, the European Commission appears to have understated the associated exogenous pressures from the climate change regime and the staunch attitudes of some UNFCCC parties, ignoring the fact that "new norms never enter a normative vacuum but instead emerge in a highly contested space where they must compete with other norms and perceptions of interest".¹⁹² Thirdly, akin to the ICAO structure, the top-down nature of the scheme undermined its ability to garner the support of foreign airlines/states. Such a setting makes it difficult to gain acceptance given top-down schemes are "not necessarily built from solid domestic consensus".¹⁹³ Lastly, the scheme was essentially an infliction of EU environmental goals and values upon non-EU actors and thus was met with formidable rejection by all non-EU ICAO member states.¹⁹⁴ Values cannot be imposed on states – if they could, Valdes states "participants would never internalise norms and would ultimately opt to

¹⁸⁶ Norm emergence describes the process where a "norm emerges among norm makers, in most cases dominant countries at the center". See Arie Krampf *The Life Cycles of Competing Policy Norms* (Working Paper, Kolleg-Forscherguppe, April 2013) at 7.

¹⁸⁷ Norm cascading occurs when "norm entrepreneurs promote the norm at the international level, which is then adopted by other countries". See Krampf, above n 186, at 7.

¹⁸⁸ Norm internalisation occurs when "the norm gains a taken for granted status when it is institutionalised internationally as a standard". See Krampf, above n 186, at 7.

¹⁸⁹ Valdes, above n 14, at 283.

¹⁹⁰ At 283.

¹⁹¹ At 282.

¹⁹² Finnemore and Sikkink, above n 183, at 897.

¹⁹³ Valdes, above n 14, at 284.

¹⁹⁴ At 285.

reject it" as occurred in this case.¹⁹⁵ Instead of internalising the new norms, foreign airlines conformed "under protest" to the scheme to evade penalties.¹⁹⁶

Although CORSIA currently has 104 participants, any increase in the scheme's ambition may make it vulnerable to similar issues. Lessons from the EU ETS suggest if CORSIA is to be successful, it needs to trigger norm cascading. Any amendments will need to fit within the collective set of core values, incentive structures need to be made evident, and conducive processes of interaction and interpretation are required.¹⁹⁷ The ICAO cannot stop at the implementation of CORSIA – the step proposing a new standard of behaviour. CORSIA will not achieve its goals if the "tipping point that prompts the norm cascade does not occur".¹⁹⁸ Further, without norm internalisation, "norms pass quickly and do not form part of a set of values shared by the actors upon whom they are imposed".¹⁹⁹ If ever parties feel the norm change is imposed or develops without the involvement of relevant actors, norm internalisation will fail.²⁰⁰

In sum, despite strident criticism and the "politically charged allegations levelled against the scheme",²⁰¹ the EU ETS has positively influenced the formation of a legal norm i.e. ICAO agreeing to develop CORSIA as well as the industry's extra-legal norms.²⁰² What is important now is to utilise these lessons to avoid the same downfall the EU's scheme experienced. Whilst current participation in CORSIA is a positive indicator of state/airline values, it remains to be seen whether these core values are consonant with or at least can adapt to the heightened ambition necessary for CORSIA to have any effective impact.

C Case Study: CSR

As discussed, and evidenced by the EU experience, the aviation industry itself poses a large threat to effective climate action targeting aviation emissions. This section aims to assess the

¹⁹⁵ Valdes, above n 14, at 285.

¹⁹⁶ Pablo Mendes de Leon "Enforcement of the EU ETS" (2012) 37(4-5) Air and Space Law 287 at 287 as cited in Valdes, above n 14, at 285.

¹⁹⁷ At 285.

¹⁹⁸ At 285.

¹⁹⁹ Sandeep Goplan "Changing Social Norms and CEO Pay: The Role of Norms Entrepreneurs" 39 Rut. L.J. 1 at 32 as cited in Valdes, above n 14, at 285.

²⁰⁰ Valdes, above n 14, at 285.

²⁰¹ At 277.

²⁰² At 278.

usefulness of CSR in reframing the perspective that profit maximisation and environmental action are mutually exclusive goals, for the purpose of enhancing the industry's propensity for more ambitious goals and thus more stringent obligations.

1 Defining CSR

Given corporations wield significant economic, political and social power, CSR upholds the notion that “with power comes responsibility”.²⁰³ Modern corporations have unparalleled reach, scale and complexity which has “rendered obsolete that they are somehow separate and removed from the larger community”.²⁰⁴ Thus, this “dominant position” corporations hold within society has increased the fundamental expectations of a successful corporation over and above normal business operations.²⁰⁵ The World Business Council for Sustainable Development defines it as:²⁰⁶

the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as the local community and society at large.

Although for decades corporations viewed environmental regulation as “imposed from above, devoting efforts and spending money to [resist] it”, many have now altered their approach in the “new governance era”.²⁰⁷ Instead, corporations now accept there is a business case for CSR, which “often means going beyond compliance”.²⁰⁸ Consequently, corporations are now active participants in a variety of innovative regulatory practices and unilateral voluntary practices.²⁰⁹

²⁰³ N Purcell “Climate Change or Business Change - The Case for the Sustainable Business Model” (Speech at the 2007 CPA Australia Centering on Excellence Conference, Sydney, 22-24 May 2007) as cited in David Hodgkinson and Renee Garner *Global Climate Change: Australian Law and Policy* (LexisNexis Butterworths, Chatswood, 2008) at 342.

²⁰⁴ At 342.

²⁰⁵ Anna Yowell "Corporate Social Responsibility Takes Flight: An Exploration of Airline Industry CSR Reporting Practices" (BSc(Hons) Thesis, University of Arkansas, 2021) at 2.

²⁰⁶ P Watts and R Holme *Corporate social responsibility: Meeting changing expectations* (World Business Council for Sustainable Development, 1999) at 3.

²⁰⁷ Issachar Rosen-Zvi "You Are Too Soft!: What Can Corporate Social Responsibility Do For Climate Change?" (2011) 12(2) Minn. J.L. Sci. & Tech. 527 at 532.

²⁰⁸ At 532.

²⁰⁹ At 532.

The hard/soft law distinction is useful in this discussion as regards the coercive strength of each in restraining corporate behaviour.²¹⁰ The distinction is helpful in understanding the choice and possible discord between CSR which encompasses environmental goals, and profit/shareholder value maximisation. Shareholder value maximisation is viewed by law and economics scholars as a hard law restraint on company boards in many countries where directors are legally obligated to maximise shareholder interests. Whilst this legal duty may not exist in some countries including New Zealand, shareholder wealth maximisation is commonly acknowledged as the corporate objective within company law.²¹¹ On the other hand, CSR guidelines and codes of conduct tend to be non-binding and without enforcement mechanisms or penalties for non-compliance and thus can be categorised as soft law.²¹²

2 Rationale for CSR

Several rationales are noted in the literature to explain the growing interest in adopting CSR. These include: institutional pressures; stakeholder demands; risk management; cost-benefit analysis; competitive analysis; reputation enhancement; to appear legitimate; and to address the environmental and social effects of their business activities.²¹³

As a form of soft law, CSR may avoid the lag behind social development that is commonly associated with reactive hard law.²¹⁴ Moreover, CSR circumvents disputes regarding state sovereignty. Perhaps most importantly in the aviation context, reputational pressures from both consumers and investors can be utilised to maintain and enhance airline/state engagement in climate action. Given the reputational damage that ensues when a social contract between society and corporations is broken, corporate reputational capital should be perceived as a “long-term strategic asset that is operationally and financially valuable to corporations”.²¹⁵ Whilst no threat of liability exists, such reputational sanctions are likely to incite compliance.²¹⁶ Yan views reputational capital as “the missing link between voluntarism and accountability” whereby consumers, employees, suppliers and even media are recognised as enforcement

²¹⁰ Yan, above n 141, at 50.

²¹¹ See generally Stephen Bainbridge “Director versus Shareholder Primary in New Zealand Company Law as Compared to U.S.A Corporate Law” (Law-Economics Research Paper, UCLA School of Law, 2014).

²¹² Yan, above n 141, at 50-51.

²¹³ Bedanand Upadhaya and others "Diffusion of corporate social responsibility in the airline industry" (2018) 38(4) International Journal of Operations & Production Management 1020 at 1020-1021.

²¹⁴ Yan, above n 141, at 67.

²¹⁵ At 67.

²¹⁶ At 68.

agents.²¹⁷ Such effects should take hold in the aviation context given the sector is consumer-oriented and non-monopolistic in most parts of the world.²¹⁸ However, CSR is not a novel concept yet still has not prompted sufficient action from the aviation industry. Therefore, the question to be answered is how can it be enhanced for greater coercive power in the aviation context?

3 Reframing perceptions

Defeating the perception of profit/shareholder value maximisation as a hard law restraint enables reconsideration of the need for ‘business case reasoning’.²¹⁹ The focus ought not to be solely monetary, particularly where this is at the expense of the “wider societal good”.²²⁰ If airlines move the focus from profit maximisation as a hard law restraint, this paves the way for them to serve the wider interests of the airline and society.²²¹ Ideally, airlines should opt for a “more integrated and balanced approach” when driven to decide between financial and societal goals.²²²

4 CSR in the aviation industry

CSR activities are being undertaken by airlines to improve their competitive advantage and differentiate themselves from competitors.²²³ However, CSR disclosure and reporting in the aviation sector remains relatively “inconsistent and incomparable” and “of poorer quality than other high-polluting industries, such as mining and utilities”.²²⁴ Yang highlights the level of CSR reporting is “relatively small compared to the size of the industry”.²²⁵ Historically, insufficient action was taken by the aviation sector in environmental reporting until Rio’s Earth Summit 1992 where agenda 21 encouraged organisations “to report annually on their

²¹⁷ Yan, above n 141, at 68.

²¹⁸ At 68.

²¹⁹ Business case reasoning seeks to justify CSR on an economic basis through its ability to positively influence residual profits and shareholder value. Whilst this serves to align CSR with profit/shareholder value maximisation, it is harmful in that it “render[s] CSR a mere instrument to further shareholder value, which tends to overlook its intrinsic, normative value”. See Shelley Brickson “Organizational Identity Orientation: The Genesis of the Role of the Firm and Distinct Forms of Social Value” (2007) 32 Acad. Mgmt. Rev. 864 at 864. See also Yan, above n 141, at 79 and 81.

²²⁰ Yan, above n 141, at 82.

²²¹ At 82.

²²² At 82.

²²³ Yang, Ngai and Lu, above n 26, at 3.

²²⁴ Kate Ringham and Samantha Miles “The boundary of corporate social responsibility reporting: the case of the airline industry” (2018) 26(7) Journal of Sustainable Tourism 1043 at 1044.

²²⁵ Yang, Ngai and Lu, above n 26, at 4.

environmental records as well as on their use of energy and natural resources”.²²⁶ Whilst CSR reporting and disclosure differs between airlines, particularly where there are differing legal and regulatory environments, there has been a positive shift towards heightened quantity, quality, breadth and depth of CSR reports in the past two decades.²²⁷ Despite this, studies have highlighted issues including low credibility, inconsistency and use of unstable results.²²⁸ This makes any comparison between airlines tricky and therefore gives leeway for self-governed omissions. Hence, the current voluntary and inconsistent nature of reporting does nothing to enhance corporations’ consistent ambition for improvement.

Moreover, the current lack of a “strong and well-enforced worldwide regulation on aviation emissions” coupled with the disharmony among relevant stakeholders, as highlighted in Part III, suggests airlines are less likely to behave responsibly towards addressing emissions.²²⁹

5 Limitations: Is CSR too soft?

An assessment of CSR’s limitations is necessary to answer the key question: is CSR useful for tackling climate change in the aviation context and if so, what are the requisite conditions for its effectiveness?

(i) Economic considerations

Is it realistic to expect airlines with “vulnerable financial health and annual net profit margins hovering around one per cent” to suitably balance profitability with climate goals given airlines’ financial health “cannot always be divorced from their ability to comply with their legal and corporate obligations”?²³⁰ In the aviation context, we must be wary to assume airlines, who have been operating in a largely deregulated market, will be fully willing to adopt CSR in

²²⁶ United Nations Environment Programme *Company Environmental Reporting: measure of the progress of business & industry towards sustainable development* (Technical Report No. 24, UNEP and Sustainability, London, 1994) at 5.

²²⁷ Yang, Ngai and Lu, above n 26, at 4.

²²⁸ At 4.

²²⁹ Paul Peeters and others "Airlines and Corporate Responsibility: Issues and Challenges" in Dagmar Lund-Durlacher and others (eds) *Corporate Sustainability and Responsibility in Tourism* (Springer, Cham, 2019) 163 at 172.

²³⁰ Peter Paul Fitzgerald and René David-Cooper "Corporate Social Responsibility in the Aviation Industry" in Tanveer Ahmad, Armand De Mestral and Paul Fitzgerald (eds) *Sustainable development, international aviation, and treaty implementation* (Cambridge University Press, Cambridge, 2018) 312 at 313.

their business models. Indeed, CSR is not always perceived as a lucrative business strategy as such.²³¹ As airlines “operate in a capital-intensive industry and have often struggled to amass the necessary capital to upgrade their fleets in compliance with emerging safety norms”, it is likely the same will occur for climate goals.²³² When confronted with a duty to “go green”, the airline necessarily must either “absorb the consequential costs of environmental measures or pass them on to the consumer”, both of which are commercially unappealing.²³³ Hence, the real issue we must address is: how do we incentivise airlines globally to adopt CSR in a liberalised market in which airlines already continuously grapple to balance profitability with a series of already rigorous regulations?²³⁴

Conversely, CSR can be viewed as key and beneficial in the long-run, given compliance may likely become compulsory at a later point. As social norms often become binding requirements, CSR improves airlines’ propensity to remain sustainable, making gradual adjustments as opposed to abrupt and therefore costly ones, especially where “onerous regulatory changes” take effect.²³⁵ But, is this enough of an incentive, particularly when considering smaller, low-cost airlines?

(ii) Greenwashing

Importantly, CSR is subject to manipulation by corporations. Greenwashing is making “representations that present unsubstantiated carbon neutral claims”.²³⁶ To be of value in an attempt to achieve carbon neutrality, corporations must not “misinform consumers or the market”.²³⁷ With truthful information, however, the market can deplete GHG emissions by “supporting businesses which have transformed climate change risks into opportunities”.²³⁸ Hence, it is crucial for such misinformation to be prevented via advertising regulations.²³⁹

²³¹ Fitzgerald and David-Cooper, above n 230, at 318.

²³² At 318.

²³³ At 318.

²³⁴ P. S. Dempsey and L. E. Gesell *Air Transportation: Foundations for the 21st century* (Coast Aire Publication, Chandler, Arizona, 1997) at 42.

²³⁵ Fitzgerald and David-Cooper, above n 230, at 319.

²³⁶ Simon Schofield "The Law of Climate Change Mitigation in New Zealand" (LLM Thesis, University of Canterbury, 2012) at 70.

²³⁷ At 70.

²³⁸ At 70.

²³⁹ New Zealand, Australia, the United States, Canada and the United Kingdom, among other nations, have green guides provided by their respective governments elucidating what constitutes acceptable advertising. Further, the Greenhouse Gas Protocol, the Climate Registry, PAS 2050, and the Voluntary Carbon Standard also

(iii) Governance/Legal Environment

Airlines' CSR practices are inevitably influenced by the governance structure and legal environment, as well as norms, values and beliefs, in the society they are operating in and thus must be viewed in the context of these institutional frameworks.²⁴⁰ In states where "governance and corporate transparency are highly valued", corporations are more likely to adopt voluntary CSR disclosures whilst where weak governance structures are present, corporations are less likely to engage in such practices.²⁴¹ These hypotheses are supported by a 2019 study which found that airlines' willingness to undertake CSR practices increase under "ideal conditions" i.e. the necessary governance structure and legal environment.²⁴²

(iv) Voluntary and Inconsistent

Research has confirmed that "overall CSR disclosure within the airline sector is weak, particularly with regards to economic and environmental indicators".²⁴³ In order for CSR measures to be effective, Yang believes disclosure must be mandatory. However, at present, no such mandatory CSR reporting standards have been implemented on an economy-wide basis.²⁴⁴

CSR reporting generally has two stages - deciding whether to report on an issue or not and then determining a reporting boundary.²⁴⁵ This second stage tends to lack transparency. It is heavily subject to manipulation by management who are "free to define boundaries and consequently boundary setting is not a neutral activity".²⁴⁶ The majority of examples of CSR reporting practice tend to be viewed as "self-laudatory reflections of impact based on constricted narrow boundaries. Such reports ignore most, if not all, indirect impacts and many direct impacts that

intend to provide for consistent methods of calculation, verification and public reporting. See Schofield, above n 236, at 85-86.

²⁴⁰ Merve Kiliç, Ali Uyar and Abdullah S. Karaman "What impacts sustainability reporting in the global aviation industry? An institutional perspective" (2019) 79 *Transport Policy* 54 at 56.

²⁴¹ At 56.

²⁴² At 62.

²⁴³ Ringham and Miles, above n 224, at 1058.

²⁴⁴ Lavender Yang, Nicholas Z. Muller and Pierre Jinghong Liang *The Real Effects of Mandatory CSR Disclosure on Emissions: Evidence from the Greenhouse Gas Reporting Program* (National Bureau of Economic Research, July 2021) at 1.

²⁴⁵ Ringham and Miles, above n 224, at 1045.

²⁴⁶ At 1045.

should be reportable under a strict adherence to the entity concept”.²⁴⁷ This is indicative of widespread use of this cherry-picking technique “between, and within, guidance in order to claim compliance and receive associated credibility”.²⁴⁸ This is especially pertinent for guidelines like the International Standard Organisation which already designate narrow reporting forms as a starting point.²⁴⁹

As such, CSR action and reporting is extremely inconsistent amongst airlines. This makes it difficult for stakeholders to make meaningful decisions by comparison, and fails to promote ambition via scrutiny. Overall, this highlights the need to investigate and clarify CSR reporting standards and boundaries in order to enhance consistency amongst the industry and therefore ambition.

(v) Ambition?

The key question remains though - is CSR enough? We are facing a “planetary emergency”.²⁵⁰ In order to achieve the target of remaining within the two degree warming threshold set by Paris, “massive structural changes in our energy and transportation systems” are needed.²⁵¹ Arguably, such voluntary CSR measures are in fact too weak and do not go far enough so as to effect sufficient action and thus emissions reductions by airlines.

Consequently, can we say corporations are gradually adopting CSR practices and becoming more “environmentally responsible and responsive to societal concerns about climate change”?²⁵² Or is the shift to new governance simply “better public relations strategies, with codes of conduct and CSR reports serving as a new form of window dressing”?²⁵³ The answer is not straightforward. Evidently, CSR appears too soft. Nevertheless, it would be unwise to dismiss CSR and abandon it completely. The analysis has shown CSR is subject to manipulation by corporations, but it is clear CSR is capable of altering corporate behaviour. Consequently, the focus must be on under what circumstances can CSR be made effective.²⁵⁴

²⁴⁷ Ringham and Miles, above n 224, at 1047.

²⁴⁸ At 1046.

²⁴⁹ At 1046.

²⁵⁰ David L Levy “Why corporate sustainability won’t solve climate change” (2 December 2015) The Conversation <<https://theconversation.com/why-corporate-sustainability-wont-solve-climate-change-51439>>.

²⁵¹ Levy, above n 250.

²⁵² Rosen-Zvi, above n 207, at 556.

²⁵³ At 556.

²⁵⁴ At 557.

Firstly, successful CSR relies on transparency and standardisation. It is key to consider how we can make environmental reporting, which is presently inadequate, into a more functional and advantageous regulatory tool. Secondly, the environment in which an airline is operating has significant influence on CSR's operation. Rosen-Zvi suggests "soft law cannot by itself provide an answer to the mammoth problem of climate change...".²⁵⁵ However, as studies evidence, the stricter the hard regulatory background is, the more effective the CSR activities that accompany it are.²⁵⁶ Moreover, pressure from the market via stakeholders or simply societal beliefs and values are influential in affecting change in airline behaviour. Airlines are well aware their markets are "socially embedded" and their consumers value climate issues, which prompts increased environmentally responsible action. This effect is heightened in stakeholder-oriented countries.²⁵⁷

6 Opportunities via CORSIA

Still, in light of the limitations, it is evident some hard law presence is necessary, given there is a high risk of opportunism and monitoring compliance has its difficulties.²⁵⁸ Implementing a hard law approach could involve mandating CSR reporting/disclosure domestically.

A 2021 United States study sought to investigate the effect a "nation-wide mandatory reporting and disclosure requirement, the Greenhouse Gas Reporting Program²⁵⁹ (GHGRP) would have on plant level carbon dioxide emissions.²⁶⁰ The study found a "significant reduction [7 per cent] in CO₂ emission rates for plants ... subject to the mandated disclosure requirements...".²⁶¹ Reductions were greater in magnitude (10 per cent) for plants owned by publicly traded firms.²⁶² Furthermore, S&P 500 members had an even greater reduction of 11 per cent.²⁶³ Lastly, the study found evidence of "strategic behaviour in firms that own multiple

²⁵⁵ Rosen-Zvi, above n 207, at 557.

²⁵⁶ At 557.

²⁵⁷ At 557-558.

²⁵⁸ Thomas McInerney "Putting Regulation before Responsibility: Towards Binding Norms of Corporate Social Responsibility" (2007) 40 *Cornell Int'l. L.J.* 171 at 186.

²⁵⁹ This program mandates all United States facilities who emit over 25,000 tonnes of CO₂ per year to report their CO₂ emissions to federal regulators who will publish the data publicly in a "comprehensive and accessible manner". See Yang, Muller and Liang, above n 244, at 1-2.

²⁶⁰ At 1.

²⁶¹ At 2-3.

²⁶² At 3.

²⁶³ At 3.

plants ... [reducing] emission rates at plants covered by the GHGRP while increasing the CO₂ discharge rates at plants below the reporting threshold [by 25-56 per cent]”.²⁶⁴

There are three key takeaways from this study for the purposes of this paper. Firstly, it is evident stakeholder pressure is powerful in influencing corporate behaviour. The heightened reductions for publicly listed companies are unsurprising given the nature of the capital market. Secondly, the practicalities and financial implications must be a key consideration in any proposed regulation. It is evident from the study that companies who come under the program find GHGRP disclosure expensive. The increased emissions from non-disclosing companies that do not fall under the program serve to offset the other reductions and potentially worsen aggregate emissions - an outcome that needs to be avoided. Lastly, any policy-maker must consider the requisite effect on ambition. Whilst the reductions achieved by this mandatory disclosure program appear promising, it is important to ensure such efforts are not merely tokenistic and countered by non-disclosing affiliated companies. Furthermore, the emission level at which a company would meet the threshold for mandatory disclosure is significant. It is important to set this level to ensure ambition remains highly encouraged as opposed to companies simply aiming to get under the threshold so as to avoid disclosure obligations. It is also important not to leave leeway for low emitters to increase emissions without scrutiny or any disincentive from doing so.

Overall, the literature suggests penalties are key to ensuring corporations’ willingness to comply. However, in its current form, CORSIA’s disclosure requirements will have little coercive effect on parties given it lacks an enforcement mechanism. Hence, this must be a critical focus. This will be discussed in further detail in Part V.

D Summary

It is now crucial to “squarely face the regulatory power in the hard law and flexibility in the soft law” to determine how best to advance CSR and restrain corporate irresponsibility within the aviation sector.²⁶⁵ Hard and soft law should be utilised as complements in this context to

²⁶⁴ Yang, Muller and Liang, above n 244, at 3.

²⁶⁵ Yan, above n 141, at 85.

enhance cooperation amongst stakeholders.²⁶⁶ A hardening of CORSIA combined with more powerful CSR is key to increasing the effectiveness of the aviation climate regime.

VI Where To Next?

Parts III and IV have highlighted key issues with the current position (i.e. ICAO and CORSIA) and barriers that need to be overcome in order to achieve effective mitigation in the aviation sector. Moving forward, the pivotal challenge is to increase CORSIA's ambition and thus states' obligations whilst maintaining state participation. To achieve this, norm internalisation needs to occur. This section will explore options for hardening CORSIA coupled with advancement of norm internalisation via Paris' bottom-up framework and CSR through the power of consumer/investor pressure.

A Soft and/or Hard Regulation?

GHG emissions from international aviation remain one of the sectors “biggest and most complex challenges”.²⁶⁷ Current measures represent a positive step toward tackling international aviation emissions, but are “woefully insufficient” to decarbonise the aviation industry by 2050.²⁶⁸ This paper has canvassed the opportunities and limitations associated with soft and hard regulatory measures highlighting a clear and urgent need for refinement. Given the complexity of the matter, neither CSR (soft) nor hard regulatory measures will, on their own, achieve the necessary mitigatory impact. CSR must be coupled with robust GHG mitigation frameworks that not only “harness the ... sector into action” but encourage beyond-minimum ambition.²⁶⁹ A large-scale effort with coordinated policy measures at the global, national and sector level will enhance success. The strengths and weaknesses of the solutions offered in sections B, C and D will be assessed against the following criteria: political/industry will; and financial burden.

B An Ambitious Global Framework for International Aviation Emissions

²⁶⁶ Shaffer and Pollack, above n 157, at 26.

²⁶⁷ Valdes, above n 14, at 319.

²⁶⁸ Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 3.

²⁶⁹ Ortar, above n 2, at 3.

To avoid surpassing the Paris Agreement's 1.5°C temperature threshold, society is left with a carbon budget of 200-350 GtCO₂ for the period 2016-2100.²⁷⁰ The aviation sector is currently set to emit 56 GtCO₂ between 2016 and 2050 i.e. one-quarter of the carbon budget.²⁷¹ Hence, it is crucial for the sector to take heightened action with the end result being “an aviation sector which is zero CO₂ and non-CO₂ effects on the climate by the end of this century”.²⁷²

At present, the aviation sector itself has committed to an “aspirational target of 50 [per cent] emissions reductions relative to 2005 levels by 2050” but is resistant to carbon pricing measures and “more effective CO₂ standards which would help deliver this goal”.²⁷³ Furthermore, ICAO’s best efforts have failed to set a long-term sector goal.²⁷⁴ On this basis, a key first step is for governments to implement a long-term decarbonisation strategy and emissions reduction goal (through ICAO and aligned with the Paris Agreement) so as to harmonise regulation with the sector’s need for elevated ambition.²⁷⁵ This would be useful to direct regional, domestic and international policy, advance a “unifying understanding of where the sector needs to go” and prompt added technological, financing and policy innovation.²⁷⁶ An adequately ambitious long-term pathway must be complemented by an “accompanying roadmap” that establishes short-term, medium-term and long-term actions and associated policies.²⁷⁷ The following sections canvas what are, in my view, crucial options for next steps on the roadmap toward decarbonisation.

1 Enhancing CORSIA

Aviation emissions are an international problem necessitating an international solution. Despite key issues with CORSIA as currently proposed by ICAO, it is preferable to maintain a global mechanism to avoid a possible patchwork of various policy measures.²⁷⁸ Enhancing CORSIA is the most viable option and will be most efficient as opposed to starting from square one, particularly given the time it took for ICAO to get to this point. A variety of refinements are necessary to make CORSIA more robust and effective.

²⁷⁰ Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 4.

²⁷¹ At 4.

²⁷² At 4.

²⁷³ At 3.

²⁷⁴ At 3.

²⁷⁵ At 3.

²⁷⁶ At 4.

²⁷⁷ At 4.

²⁷⁸ Valdes, above n 14, at 288.

(i) Ambition

Currently, CORSIA covers a mere 21.6 per cent of international aviation emissions for the period between 2021 and 2035.²⁷⁹ ICAO member states should utilise CORSIA to raise ambition in the first review in 2022.

A key improvement is to alter the carbon-neutral growth target so as to ensure CORSIA achieves an absolute net emissions reduction.²⁸⁰ Insisting on limiting growth as opposed to any true emissions reductions is intolerable given the magnitude of the climate crisis. Widening the scope of CORSIA as opposed to limiting it to increases post-2020 is preferable. Greater ambition could be achieved by altering the baseline year from 2020 to 2000 or earlier, or alternatively by using a discount factor on the baseline such as 50 per cent of average 2020 emissions as opposed to 100 per cent.²⁸¹

(ii) Non-CO2 effects

The current ignorance of additional scientifically proven effects of aviation emissions, of which are at least twice that of CO₂, is highly unsatisfactory.²⁸² The 2022 review should therefore also look to extend the scope of CORSIA to account for both CO₂ and non-CO₂ effects. At minimum, in the short-term the aviation sector and states should be looking to support scientific research into non-CO₂ effects and promote measures to tackle non-CO₂ impacts including eschewing flight paths in climate-sensitive territories which lead to non-CO₂ emissions and advancing “operational requirements and engine standards to manage short-lived climate pollutants that are deemed significant”.²⁸³

(iii) Participation

²⁷⁹ Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 6.

²⁸⁰ At 6.

²⁸¹ Janina Scheelhaase and Sven Maertens “How to improve the global ‘Carbon Offsetting and Reduction Scheme for International Aviation’ (CORSIA)?” (2020) 51 *Transportation Research Procedia* 108 at 116.

²⁸² Magdalena Heuwieser *The Illusion of Green Flying* (Finance & Trade Watch, November 2017) at 11.

²⁸³ Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 5.

Whilst the climate crisis demands urgent widespread action, it is likely too late to alter CORSIA's voluntary participation in phase one. 104 states have voluntarily pledged their commitment to the pilot phase. Hence, their value is promising. Consider Malaysia, Qatar, Thailand, Singapore, Korea and the United Arab Emirates - six developing countries that have shown a relatively liberal attitude toward aviation and climate change.²⁸⁴ These six states are accountable for 21.6 per cent of international aviation GHG emissions. Their voluntary involvement is highly beneficial in boosting the scheme's scope of coverage.²⁸⁵ Whilst arguably these states have no obvious incentive for exposing their airlines to a carbon price earlier than necessary, this disregards the severe reputational harm states would be subject to.²⁸⁶ Given the high performing airlines in these states have been "accused of profiting from carbon leakage" under the EU ETS, these states are positively demonstrating leadership by opting to voluntarily phase in routes to and from their regions during the pilot phase.²⁸⁷

On the one hand, the phased implementation approach may prove beneficial in transitioning the aviation sector from norm emergence to norm cascading. To include binding emission reduction commitments from the beginning is wholly unrealistic, particularly given past state behaviour trends in the EU ETS. The reality is some states would be simply unable to accept them.²⁸⁸ However, the danger that remains to be seen is whether a mass exodus will occur in 2027 when mandatory participation begins. Maintaining participation beyond this point must be a key consideration for ICAO given 90 per cent of all international activity is set to be covered by the scheme at this point.²⁸⁹ One option to incentivise participation is to link offsetting credits to actual participation in the scheme whereby airlines would only be able to purchase credits from projects in states already committed to CORSIA.²⁹⁰ This would act as a significant incentive for both states, avoiding free rider issues.²⁹¹ Moreover, as will be discussed in more detail below, increased pressure from consumers and investors is necessary to enhance the power of CSR to incentivise participation in CORSIA.

(iv) Equity

²⁸⁴ Valdes, above n 14, at 333.

²⁸⁵ At 333.

²⁸⁶ At 333.

²⁸⁷ At 333.

²⁸⁸ At 332.

²⁸⁹ International Air Transport Association "CORSIA Fact Sheet" (July 2021) < <https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet---corsia/>>.

²⁹⁰ Valdes, above n 14, at 336.

²⁹¹ At 336.

Given the unjust and problematic nature of emissions offsetting which essentially allows a small proportion of society to continue flying “with a clear environmental conscience” whilst others are responsible for decreasing their GHG emissions, alternative mechanisms should be considered.²⁹² Whilst a carbon tax is arguably a more effective option, this is unlikely to be supported by airlines nor states.²⁹³ Given CORSIA's dependence on controversial offsets, one option to address equity concerns is to transform CORSIA from an offsetting project to a market-based revenue-generating measure whereby profits could be put toward further research and technology development to generate additional emissions reductions or towards developing countries.²⁹⁴ However, key challenges must be overcome for this to be put into practice. Firstly, this is likely to be strongly opposed by the aviation industry who perceive it as an additional tax burden.²⁹⁵ Secondly, such a measure will heighten the scheme's complexity generating operational and legal challenges associated with management of revenues.²⁹⁶ Lastly, it is doubtful whether developed states would allow the imposition of a fee on their passengers to support climate change efforts in developing nations.²⁹⁷ Whilst ICAO's past attempts at setting international funds have been unsuccessful,²⁹⁸ ICAO could investigate the potential opportunities blockchain might provide in this context given its ability to enhance tracking, reporting, trust, transparency and security whilst decreasing bureaucracy and transaction costs.²⁹⁹ Alternatively and perhaps more realistically, it is necessary to ensure a "solid, diverse portfolio of carbon offset units from different projects, standards and countries, as well as retiring an extra amount of carbon offset units" in order to safeguard against a paradoxical outcome.³⁰⁰

(v) Enforcement

²⁹² Heuwieser, above n 282, at 9.

²⁹³ For detailed discussion of arguments in favour of a carbon tax, see Ruwantissa Abeyratne "Aircraft Engine Emissions – Carbon Offsetting or Carbon Tax?" (2019) 49(4-5) Environmental Policy and Law 210.

²⁹⁴ Climate Action Network and International Coalition for Sustainable Aviation, above n 3, at 6.

²⁹⁵ Valdes, above n 14, at 335.

²⁹⁶ At 335.

²⁹⁷ At 336.

²⁹⁸ For example, the Guatemala City Protocol and the Unlawful Interference Convention. See Valdes, above n 14, at 336.

²⁹⁹ Climate Ledger Initiative *Blockchain for Climate Action and the Governance Challenge* (updated July 2021) at 23 and 41.

³⁰⁰ Alexander Stathakis "Not all carbon offsets are equal" *Conversio* <<https://conversio.consulting/blog/not-all-carbon-offsets-are-equal>>.

Currently, CORSIA is significantly hindered by enforcement gaps given ICAO lacks an enforcement authority. For it to have any meaningful impact on GHG emissions, CORSIA must provide a mandatory system for timely, accurate and transparent reporting of emissions data, have the legal, financial and human resources to hold parties to account for non-compliance, and have a suitable dispute resolution mechanism.³⁰¹

As evidenced by the discussion of CSR, ICAO can easily utilise transparency as a “quasi-enforcement”³⁰² mechanism in order to urge compliance.³⁰³ Historically, ICAO has executed audit programs for aviation safety and security which oversee compliance to ICAO standards. Such programs owe their success to the progressive publication of the audit results, and have been “instrumental in raising awareness of safety and security issues as well as contributing to higher state compliance levels”.³⁰⁴ Assad Kotaite, the President Emeritus of the ICAO Council has stated that “[through transparency ICAO may be] able to achieve results not through enforcement, but through moral persuasion.”³⁰⁵ Hence, transparency should be a central component of CORSIA enabling the public to spot non-adhering participants, naming and shaming them, and exert reputational pressures.³⁰⁶ This should be easily achievable via ICAO’s central registry.

However, full transparency may be limited by “concerns over disclosure of commercially sensitive information”.³⁰⁷ Furthermore, the distinction between safety and security and environmental commitments in aviation must be acknowledged. Whilst airlines are progressively increasing their environmental agendas, consumers understandably place higher value on safety and security compared with its concern for aviation’s contribution to climate change.³⁰⁸ Wider education on environmental issues is altering this value system however.

³⁰¹ Abeyratne, above n 293, at 217.

³⁰² Jimena Blumenkron “Implications of Transparency in the International Civil Aviation Organization’s Universal Safety Oversight Audit Program” (LLM Thesis, McGill University, Montreal, 2009) at 77.

³⁰³ Valdes, above n 14, at 343.

³⁰⁴ At 344.

³⁰⁵ Assad Kotaite *My Memoirs: 50 Years of International Diplomacy and Conciliation in Aviation* (ICAO, Montreal, 2013) at 212 as cited in Valdes, above n 14, at 344.

³⁰⁶ Valdes, above n 14, at 345.

³⁰⁷ At 345.

³⁰⁸ At 345.

Transparency should be accompanied by external enforcers (industry stakeholders or states) akin to previous ICAO audits.³⁰⁹ The majority of air services agreements envisage the power conferred on foreign aircraft operators where the conferring state “has reasonable ground to believe” the other state is not adhering to ICAO safety or security standards.³¹⁰ Moreover, the Convention contains a built-in tool allowing states to refuse to accept non-conforming certificates of airworthiness, competency and licenses supplied by another state.³¹¹ This has led some states to ban foreign operators. However, again this would not be without challenges. The language of the Convention suggests this could only apply where non-compliance relates to standards concerned with certificates and licenses, not technical standards like the one instituting CORSIA.³¹² Hence, whilst the Convention and air services agreements have been employed as additional enforcers of ICAO standards, they are not in their current forms useful in the context of CORSIA.³¹³ Given that CORSIA was implemented via an Assembly resolution, Piera suggests the “assistance derived from “external enforcers” [becomes] much more relevant”.³¹⁴ In order to overcome this barrier, IATA could mandate adherence to CORSIA for its member airlines, as well as involvement in environmental audits. In order to further enhance enforcement, states should progressively amend air service agreements to authorise operational bans on non-complying states.³¹⁵ Such measures would guarantee a large number of airlines remain CORSIA participants and comply accordingly.³¹⁶

Lastly, article 54(j), which “mandates the Council to report non-compliant states to the Assembly”,³¹⁷ could also be used as an enforcement tool. This article covers both infractions of the Convention by member states and failures to implement Council recommendations or determinations.³¹⁸ Although “infraction” is not defined, the ICAO’s Legal Bureau explained in 1999 “the term should be given its ordinary meaning, that is to say any breach, violation or infringement of any of the articles of the ... Convention”.³¹⁹ Whilst non-adherence with CORSIA may not amount to a contravention of the Convention, the “constating instrument” -

³⁰⁹ Valdes, above n 14, at 345.

³¹⁰ At 345.

³¹¹ At 346.

³¹² At 346.

³¹³ At 346.

³¹⁴ At 346.

³¹⁵ At 346.

³¹⁶ At 346.

³¹⁷ At 346.

³¹⁸ At 347.

³¹⁹ At 347.

the Assembly resolution - could require the Council to report non-compliance to the Assembly.³²⁰ States would be notified of non-complying airlines and allowed “reasonable time to take corrective action”.³²¹ Failure to do so would result in the Council reporting to the Assembly. Hypothetically, such a measure may significantly disincentivise non-compliance but importantly, the Council has not previously utilised this procedure.³²²

(vi) Additional actions

CORSIA was introduced via article 2(2) of the Kyoto Protocol - a very weak legal basis.³²³ The precarious legal situation regarding CORSIA’s adoption and implementation calls for consideration of a more substantial and aspirational solution - amending the aviation legal regime.³²⁴ Whilst the Chicago legal regime evidently boasts adequate flexibility to read environmental principles into its multilateral charter, this cannot be a long-term answer.³²⁵ The key question, as coined by Leclerc, is: “how do we adapt a multilateral system that was designed to promote peace and prosperity in a world without environmental constraints?”³²⁶ This presents both legal and political issues with regard to the Convention. Firstly, there is a lack of political will to amend the Convention in any significant way. Indeed, if such willingness did exist, article 94(a) instructs amendment must be endorsed by a two-thirds vote of the Assembly i.e. at least 129 states.³²⁷ Given the disagreement on climate change between members, this is unlikely. Moreover, such an amendment would only apply “with respect to those who have ratified it”.³²⁸ This suggests a need to amend both article 94 followed by a significant amendment of ICAO’s objectives to secure the sustainable development of international aviation and the “proper implementation of the polluter pays principle”.³²⁹ However, there will undoubtedly be challenges achieving the “same level of consensus that existed in 1944 during the Chicago Conference”.³³⁰ Leclerc suggests we will have to wait for

³²⁰ Valdes, above n 14, at 347.

³²¹ At 347.

³²² At 347.

³²³ Thomas Leclerc “A Sectoral Application of the Polluter Pays Principle: Lessons Learned from the Aviation Sector” (2019) 9 *Climate Law* 303 at 318.

³²⁴ At 322.

³²⁵ At 322.

³²⁶ At 322.

³²⁷ Convention on International Civil Aviation, above n 46, art 94(b). See also Leclerc, above n 323, at 323.

³²⁸ International Civil Aviation Organisation *Proposal for a Study of Policy and Programme with Respect to Examining the International Governance of Civil Aviation* A36-WP/284 EX/91 Rev 1 (21 September, 2007).

³²⁹ Leclerc, above n 323, at 324.

³³⁰ At 324.

an opportune time given “large reforms of different branches of the UN System have to wait for decisive historical moments”.³³¹ CORSIA represents the “progressive integration of the polluter pays principle consistent with the ideology of the Rio Declaration: an ideology of economic development to which ‘sustainable’ has been added in order to make it acceptable”.³³² Whilst this may serve in the interim, we are confronted with opposing legal regimes attached to inherently contrasting paradigms, thus “making it difficult if not impossible, for ICAO to successfully adopt and implement a global scheme to curb emissions from the aviation sector”.³³³ Though desirable, it is unrealistic to assume substantial amendments to the Convention will occur in the near future.

2 Where does this leave the EU ETS?

Both CORSIA and the EU ETS strive to regulate a share of international aviation emissions and thus may overlap.³³⁴ CORSIA’s coverage extends to flights between two participating states including the EU, though non-volunteering states including China, Brazil, Russia and India will only be covered in 2027 when the scheme becomes mandatory.³³⁵ The EU ETS covers all flights within the EU alongside European Free Trade Association (EFTA) states, whilst international flights to and from the EU are currently excluded until 2023.³³⁶ This raises two questions: should the EU ETS extend to international flights?; and can the EU ETS and CORSIA operate contemporaneously?³³⁷ On the one hand, continuance of unilateral schemes alongside CORSIA may be viewed as undermining its effectiveness whilst on the other hand, having the EU ETS cover EU and international aviation emissions is arguably “the most environmentally effective option” based on CORSIA’s current form.³³⁸

In my view, the answer to the first question must be in the affirmative, at least in the short-term. CORSIA “fails to cover a significant portion of emissions from international flights [and] relies on questionable carbon offsets”.³³⁹ Given the EU ETS is significantly more valuable in

³³¹ Leclerc, above n 323, at 324.

³³² At 325.

³³³ At 325.

³³⁴ Carbon Market Watch *How can the EU Emissions Trading System drive the aviation sector’s decarbonisation?* (2021) at 2.

³³⁵ At 2.

³³⁶ At 2.

³³⁷ At 2.

³³⁸ At 3.

³³⁹ At 2.

terms of climate benefits, the EU ETS ought to be prioritised at least until CORSIA can be strengthened as suggested above to avoid leaving a “vast majority of emissions unpriced”.³⁴⁰

The second question is politically important more so than environmentally given CORSIA’s current failure to induce significant climate impact.³⁴¹ Currently CORSIA is relatively cheap for airlines to comply with given the current price of credits sits at approximately \$2 USD and offsetting commitments are confined to emissions growth. Thus, CORSIA will not place significant financial strain on airlines, in fact it places no burden on zero-growth airlines.³⁴² Hence, any overlap between the EU ETS and CORSIA is not likely to create financial burdens on airlines.³⁴³ However, if the EU is reluctant to double-regulate airlines, the EU ETS is preferred until CORSIA is substantially amended.

Overall, for optimal climate benefits, the EU ETS should cover both EU and international aviation emissions in the interim until substantial amendment is made to CORSIA. However, given the EU’s support for and commitment to CORSIA, a different solution may be required. Carbon Market Watch offers a pragmatic option whereby “flights within the EU/EFTA remain covered by the EU [ETS] only” and “flights leaving from or arriving in the EU/EFTA will be covered by CORSIA, with additional coverage by the EU ETS for the portion of emissions not priced by CORSIA, i.e. emissions below the 2019 baseline”.³⁴⁴ Implementing this would seemingly achieve the ‘best of both worlds’ enabling the EU to support multilateral climate action politically whilst restricting the amount CORSIA threatens EU ambition.³⁴⁵ In the event amendment to CORSIA is unsuccessful and full reliance falls back on the EU ETS, focus must be had on widening its scope, including to non-CO2 effects.³⁴⁶

3 State responsibility via NDCs

³⁴⁰ Carbon Market Watch, above n 334, at 2.

³⁴¹ At 2.

³⁴² At 2.

³⁴³ Carbon Market Watch reports “the cost of implementing CORSIA on flights currently covered by the EU ETS is estimated to be equivalent to 1.8% of the EU ETS’ costs”. See Carbon Market Watch, above n 334, at 2.

³⁴⁴ At 3.

³⁴⁵ At 3.

³⁴⁶ At 3.

ICAO's current basket of mitigation measures (technology, operations, CORSIA and SAF) are "critically insufficient" and "compatible with a 4°C+ world".³⁴⁷ Furthermore, ICAO has failed to implement a long-term international goal for mitigating international aviation emissions despite 23 years passing since its Kyoto mandate.³⁴⁸ On these bases, it is prime time to reconsider the ICAO/UNFCCC relationship in light of COVID-influenced setbacks to CORSIA and the forthcoming COP26.³⁴⁹ Lyle states "the Kyoto Protocol has now effectively lapsed and international aviation is de facto encompassed by the Paris Agreement" suggesting a key next step could be to mandate the inclusion of international aviation into NDCs at COP26.³⁵⁰ This is a key step towards reconciling the impasse between ambition and participation in the aviation context.

Incorporating international aviation into NDCs has various benefits. Firstly, it would make states directly accountable inducing them to act on their emissions, whether independently or through CORSIA and the EU ETS, as opposed to ICAO trying to achieve this for a single source at a multinational level.³⁵¹ Additionally, by positioning international aviation "more squarely into each national emissions context" it eases the challenges with dividing domestic and international operations.³⁵² Individual states would have discretion in electing mitigation measures based on their own circumstances and having regard to their own aviation industry and its relationship with other industries.³⁵³ Moreover, each state would be "held directly accountable for reducing both international and domestic aviation emissions, rather than indirectly through their airlines" and employ its sovereign jurisdiction to generate incentives or enforce penalties on airlines as required.³⁵⁴ Bringing policy under the UNFCCC would mean the CBDR principle would apply, avoiding the conflict with the Convention's non-discrimination principle which led to "different, complex and perhaps inconsistent application for aviation alone".³⁵⁵ Lastly, this would ease doubts surrounding double-counting of offsets.³⁵⁶

³⁴⁷ Chris Lyle "COMMENTARY: The global governance of aviation's emissions - time to revisit the ICAO/UNFCCC relationship" (24 March 2021) Green Air News <<https://www.greenairnews.com/?p=785>>.

³⁴⁸ Lyle, above n 347.

³⁴⁹ Lyle, above n 347.

³⁵⁰ Lyle, above n 347.

³⁵¹ Lyle, above n 347. See also Lyle, above n 4, at 123.

³⁵² Lyle, above n 347.

³⁵³ Lyle, above n 4, at 123.

³⁵⁴ Lyle, above n 347. See also Lyle, above n 4, at 123.

³⁵⁵ Lyle, above n 347. See also Lyle, above n 4, at 123.

³⁵⁶ Lyle, above n 4, at 123.

COP26 presents an opportunity to give direction on enabling and incentivising increased ambition by Parties, both in accordance with and over and above CORSIA and the EU ETS grounded in the ‘bottom-up’ nature of Paris as opposed to the ‘top-down’ approach of the ICAO.³⁵⁷ In terms of governance, ICAO should not be the sole regulator of international aviation emissions. Instead, a hybrid system could operate led by the Paris Agreement which enables Parties the necessary latitude to enhance their own more ambitious action.³⁵⁸

4 Strengths and weaknesses

Whilst enhancing the ambition of CORSIA's targets and clarifying its enforcement mechanisms makes CORSIA much more effective in theory, this does make it more financially burdensome and such amendments are unlikely to come without arduous and time-consuming ICAO negotiations.³⁵⁹ With this hardening of regulation and raising of costs comes the potential for pushback from airlines and states and thus will risk them pulling out of the scheme. However, when combined with the introduction of international aviation into the Paris Agreement, this hardening of CORSIA may not be so off-putting to states. The bottom-up nature of the Paris Agreement has proven to be more effective at securing participation but one can only hope states would be willing to commit over and above the requirements of CORSIA. Nevertheless, inclusion in NDCs will bring international aviation to the fore and may encourage norm cascading and thus encourage action from other states.

C CSR

To overcome the challenges associated with a hardening of CORSIA i.e. political/industry will and financial investment, CSR offers a complementary solution which can incentivise participation despite more stringent obligations. As corporations differ from states in that they rely financially on investor and consumer support, this pressure can be utilised to induce climate action on the part of airlines. A fortuitous cycle can be envisioned whereby airlines maintain participation and strive for ambitious action to avoid reputational and thus financial harm, which in turn leads to greater support from investors, consumers and thus provides a source of funding for mitigation activities. Whilst CSR can be viewed as “too soft”, it can be

³⁵⁷ Lyle, above n 347.

³⁵⁸ Lyle, above n 347.

³⁵⁹ Scheelhaase and Maertens, above n 281, at 116.

effective and hence useful where transparency, standardisation, stakeholder pressure and supportive regulatory environments exist.³⁶⁰

1 Within CORSIA

As discussed in greater detail above, transparency can be used as a quasi-enforcement tool. Compliance literature suggests penalties are key to incentivise corporations' will to comply.³⁶¹ Whilst CORSIA does make monitoring and reporting mandatory, the currently unambitious target set means this reporting is unlikely to prompt significant action beyond these targets. When coupled with a more ambitious and effective target as suggested, this mandatory reporting and audit function can be used as an enforcement tool and to exert reputational inducing greater action by allowing the public to compare airlines based on consistent standards.³⁶²

2 Beyond CORSIA

(i) Private governance

International private governance initiatives are possible due to the power of the market as opposed to state authority, meaning they can induce widespread action that transcends state boundaries whilst avoiding coordination and disagreement issues common in the international climate context.³⁶³ Such initiatives may include: supply chain contracts containing environmental conditions allowing firms to inflict environmental standards on others; new aircraft efficiency standards required by airlines; or private purchaser standards for offsets akin to the World Wildlife Fund's Gold Standard.³⁶⁴

Furthermore, free-market influences caused by consumers and investors increasingly demanding more from corporations have indeed driven some of the aviation industry to act as evidenced by the significant increase in CSR disclosures.³⁶⁵ Continued and heightened pressure

³⁶⁰ Rosen-Zvi, above n 207, at 557-558.

³⁶¹ Yan, above n 141, at 69.

³⁶² Valdes, above n 14, at 345.

³⁶³ Vandenberg and Metzger, above n 28, at 97.

³⁶⁴ At 98-99.

³⁶⁵ Yowell, above n 205, at 3.

from socially responsible consumers, lenders and investors can serve to “transcend national boundaries” and induce widespread action. For example the Carbon Disclosure Project utilised investor influence of \$100 trillion in assets to incentivise CO2 emissions disclosures by many firms worldwide.³⁶⁶ This led to several major aviation corporations including Delta, United, Boeing, American Airlines, Southwest and Airbus disclosing climate data to CDP in 2017.³⁶⁷ Importantly, this disclosure “allows investors to determine which firms are reducing their emissions and motivates the participating firms to reduce emissions”.³⁶⁸ Furthermore, “by voting their shares in favour of efficient practices and other carbon-reducing opportunities, corporate shareholders can exercise a degree of climate-mitigating control over corporate behaviour from within the corporation, all of which can transcend national boundaries”.³⁶⁹

(ii) Additional ambition via the law

The voluntary and inconsistent nature of CSR reporting outside of CORSIA makes comparing airlines difficult and hence does nothing to incentivise action. This necessitates consideration of alternative options to encourage increased ambition by corporations. These options could include: domestic legislation (aimed at airlines operating in the state) mandating CSR disclosure akin to the United States’ nationwide Mandatory Greenhouse Gas Reporting Program;³⁷⁰ or amendment of companies legislation to mandate non-financial obligations of company directors.³⁷¹ The potential for use of climate litigation is uncertain. Although climate litigation is “increasingly used as a strategic tool to influence policy-makers and corporate behaviour in the EU and the US,” the same cannot be said for other G20 states.³⁷² Furthermore, current regional, national and international legal frameworks are “not adapted to hold companies accountable for their greenhouse gas emissions”.³⁷³

Regarding CSR disclosure, whilst undertaking CSR initiatives has become almost obligatory for corporations to disclose, there is no requirement for these voluntary disclosures to be

³⁶⁶ Vandenberg and Metzger, above n 28, at 98.

³⁶⁷ At 99.

³⁶⁸ At 99.

³⁶⁹ At 99.

³⁷⁰ Yang, Muller and Liang, above n 244, at 1.

³⁷¹ Chapman Tripp, above n 10, at 37.

³⁷² Maud Sarliève “Climate Change: How to Make Corporations Responsible?” (5 December 2019) Justiceinfo.net <<https://www.justiceinfo.net/en/43130-climate-change-how-to-make-corporations-responsible.html>>.

³⁷³ Sarliève, above n 372.

audited and hence uncertainty remains surrounding the extent of material misstatements corporations make.³⁷⁴ This precludes shareholders and customers from making informed decisions regarding their own behaviour and might serve to avoid the necessary scrutiny, allowing airlines to continue with sub-par GHG emission reduction action. Given the exponential rise in CSR disclosures, a set of standards which enables historical and cross-industry analysis is long overdue.³⁷⁵ Financial reporting is well regulated by the Generally Accepted Accounting Standards, however there is a clear lack of statutory standards for non-financial reporting which includes sustainability reporting.³⁷⁶ Importantly, the Sustainability Accounting Standards Board (SASB) endeavours to fill this gap by introducing a framework of standards which “narrowly defines industry specific problems and risks”.³⁷⁷ In particular, the SASB standards provide the airline sector with “a set of tailored guidelines to use in voluntary CSR reporting”.³⁷⁸ The airline-specific SASB standards has four defined categories for disclosure metrics including GHG emissions, labour practices, competitive behaviour and accident and safety management.³⁷⁹ Such a framework could encompass the reporting being undertaken under CORSIA and be mandated via domestic legislation to incentivise greater action above and beyond CORSIA.

Regarding company law, the New Zealand Companies (Directors Duties) Amendment Bill, which is currently going through Parliament, provides a promising example of how company legislation can be utilised to enhance climate action. As proposed, the Bill suggests adding this subsection to s 131 of the Companies Act 1993:³⁸⁰

To avoid doubt, a director of a company may, when determining the best interests of the company, take into account recognised environmental, social and governance factors, such as:

- (a) recognising the principles of the Treaty of Waitangi (Te Tiriti o Waitangi):
- (b) reducing adverse environmental impacts:
- (c) upholding high standards of ethical behaviour:
- (d) following fair and equitable employment practices:

³⁷⁴ Yowell, above n 205, at 3.

³⁷⁵ At 3.

³⁷⁶ At 4.

³⁷⁷ At 4.

³⁷⁸ At 4.

³⁷⁹ At 4.

³⁸⁰ Companies (Directors Duties) Amendment Bill 2021 (75-1).

(e) recognising the interests of the wider community.

Such a provision provides a model for overseas jurisdictions as to how social, environmental and community objectives can be recognised via the law alongside economic ones.

4 Strengths and weaknesses

The options presented in the CSR realm are inexpensive to achieve relative to other solutions but may have large effects in terms of raising airlines' compliance costs. This in turn means there is likely to be significant pushback from industry which historically has influenced political will to implement initiatives that will increase airlines' obligations. However, airlines already complying with CORSIA may not experience the same additional compliance costs under these measures.

Whilst no silver bullet, private governance measures can beneficially serve to reduce carbon emissions in the short-term regardless of “international gridlock” or disagreement between developed and developing states.³⁸¹ Their side-stepping of sovereignty issues positively “reduce positional bargaining and enable efforts to focus on mitigation measures”.³⁸² Whilst pressure from governments is often opposed, similar pressures from the market via consumers or investors are comparatively more effective.³⁸³ Overall, the power of CSR relies on continued and increased free-market pressure caused by socially-responsible consumers, lenders and investors increasingly demanding more from airlines.

D Behavioural change

Despite the best efforts of regulators, industry actors and states, such efforts may still fail to achieve the necessary emissions reductions without significant changes in consumer behaviour. Given the severity of the climate crisis, “instead of greenwashed growth”, we need to sharply decrease our reliance on air travel.³⁸⁴ Reducing actual flying levels is “the only practical option

³⁸¹ Vandenberg and Metzger, above n 28, at 99.

³⁸² At 99.

³⁸³ At 99.

³⁸⁴ Heuwieser, above n 282, at 19.

to meet near-term emission reduction targets”.³⁸⁵ Whilst fly-less movements are growing in popularity across the globe, is mainstreaming reduced flying a realistic expectation?

1 Barriers

Aviation “promises speed, freedom, flexibility - a globalised ... lifestyle”, at least for those who can afford it.³⁸⁶ Any reduction in flying would have substantial implications economically, socially and culturally, and in particular for tourism and employment.

2 Disincentivising flying

In order to deter consumer’s away from flying, it is clear greater education, via campaigns and intensified communication, is necessary surrounding the true effects of aviation on the climate.³⁸⁷ Furthermore, “statutory restrictions on advertising for unsustainable practices” are useful to prevent climate-harming desires.³⁸⁸ However, this involves assessing to what extent we can limit individual freedom to undertake their “patterns of consumption ... in times of climate crisis”.³⁸⁹ This is crucially important given the ability of some to fly frequently “builds substantially on the curtailment of the freedom of others”.³⁹⁰ Additionally, there is a clear need to reconstruct current norms to encourage individuals to perceive themselves not just as consumers but more importantly as “citizens endowed with rights, responsibilities, and diverse scope to act”.³⁹¹

In order to alter “current patterns of life” which have become almost habitual, there is a need to adjust perceptions of flying, reassess our ‘need’ to fly given the online era and make alternative climate-friendly transport commonplace.³⁹² Whilst alternative transport options such as light-rail are not realistic in all areas, such options must be considered where possible.

³⁸⁵ Wallace Rae and Paul Callister "Can We Keep Flying? Decarbonising New Zealand's Domestic and International Aviation" (Working Paper, Victoria University of Wellington Institute for Governance and Policy Studies, 2019) at 19.

³⁸⁶ Heuwieser, above n 282, at 19.

³⁸⁷ At 20.

³⁸⁸ At 20.

³⁸⁹ At 20.

³⁹⁰ At 20.

³⁹¹ At 20.

³⁹² At 20.

The growth of alternative sustainable transport industries may address concerns of aviation-associated employees via just transitions.³⁹³

The price of flying, of which has dropped significantly over the last few decades, is also key in influencing demand.³⁹⁴ Faced with insufficient voluntary behavioural change, stronger disincentives could be utilised. Options include: removing subsidies on air travel, introducing a distance-based carbon tax to better reflect the true cost of flying; or introducing frequent flyer levies.³⁹⁵

3 Strengths and weaknesses

On the one hand, societal norms are showing signs of change whereby certain parts of society are becoming more agreeable to lifestyle and behavioural adjustments for the sake of the climate. This bodes positively for the viability of behaviour change as a solution. However, any significant behaviour change is unlikely to occur in the near future. Moreover, behaviour change is likely to be unfavourable to nations like New Zealand who lack practical alternatives yet rely on their tourism industry.³⁹⁶ Moreover, the time and cost involved in transitioning to sustainable transport alternatives are high.³⁹⁷ Finally, the embedding of aviation in globalised capitalism necessitates action beyond regulation such as offsetting and likely beyond consumer behaviour, but instead “social-ecological transformation of mobility patterns and economic systems”.³⁹⁸ Such a complex challenge is beyond the scope of this paper but an important notion to acknowledge.

E Remaining challenges

³⁹³ 'Just transitions' refers to a process whereby mobility patterns are transformed but not at the expense of the workforce i.e. workers are shifted from "unsustainable to future-oriented sectors of the economy". See Heuwieser, above n 282, at 20.

³⁹⁴ Rae and Callister, above n 385, at 20.

³⁹⁵ Larsson and others, above n 112, at 793. See also Rae and Callister, above n 385, at 20. See also Ajit Niranjana and Kira Schacht “CORSA: World's biggest plan to make flying green 'too broken to fix'” (22 January) Deutsche Welle <<https://www.dw.com/en/corsia-climate-flying-emissions-offsets/a-56309438>>.

³⁹⁶ Rae and Callister, above n 385, at 19.

³⁹⁷ Laura Wiltshire "Mass rapid transport starting to get a move on in Wellington" (4 June 2021) Stuff <<https://www.stuff.co.nz/dominion-post/news/wellington/125339632/mass-rapid-transport-starting-to-get-a-move-on-in-wellington>>.

³⁹⁸ Heuwieser, above n 282, at 21.

As highlighted, realistically, for such options to succeed, certain barriers must be considered and overcome including: state willingness to remain committed to CORSIA/Paris if ambition is heightened and targets stringently enforced; potential opposition from the aviation industry; the financial capacity of all states and airlines, particularly in light of COVID-19, to realistically meet emissions reduction requirements and adhere to monitoring and reporting requirements which can be costly. The following sections briefly introduce options that should be considered.

1 Financing mitigation

Vast capital will be required to achieve these more ambitious goals, alongside current efforts to improve fuel efficiency and fleet performance and electrify ground equipment.³⁹⁹ In fact, the Energy Transitions Commission approximates the reduction cost for aviation at \$170 (USD) per metric ton of CO₂. Applied to 2019 aviation emissions, this constitutes a cost of over \$155 billion.⁴⁰⁰ Green finance⁴⁰¹ provides a viable option to assist the industry to acquire this capital. Green finance renders "reputational, diversification, and potential yield benefits" however does require enhanced regulation to improve the classification, measurement and transparency of physical impacts to avoid greenwashing. Still, these green incentives in financing and investment would allow airlines to "strive to improve the status quo".⁴⁰² Alternatively, sustainability-linked instruments are another option. Such instruments are premised on a two-way pricing mechanism whereby coupon payments decline if predetermined targets are met, but rise if they are not.⁴⁰³ Nevertheless, these options should be investigated further for their viability in financing aviation's mitigation efforts alongside current multilateral funds.

2 Towards norm internalisation

³⁹⁹ Alastair Blanshard and Mekahl Vohra "The opportunity for green finance in the aviation sector" (21 December 2020) ICF Climate Center < <https://www.icf.com/insights/transportation/opportunity-green-finance-aviation-sector#>>.

⁴⁰⁰ Blanshard and Vohra, above n 399.

⁴⁰¹ For a detailed analysis of green finance, see Sang-Bing Tsai and others *Green Finance for Sustainable Global Growth* (IGI Global, Pennsylvania, 2019). For insight into sustainable finance in the aviation sector, see Richard Sharman and others "Sustainable finance in aviation: what does the future hold?" (July, 2020) Bird & Bird <<https://www.twobirds.com/en/news/articles/2020/global/sustainable-finance-in-aviation-what-does-the-future-hold>>. For insight into how green finance might be implemented in the UK context, see Green Finance Taskforce *Accelerating Green Finance* (March 2018).

⁴⁰² Sharman and others, above n 401.

⁴⁰³ Blanshard and Vohra, above n 399.

In an ideal world, political and industry will would allow for the quick implementation of ambitious targets and frameworks as recommended. However, this is dubious. To support the transition from norm emergence towards norm internalisation⁴⁰⁴ within aviation, any and all future action or changes to CORSIA and the current framework must occur via negotiations engaging all relevant stakeholders, as opposed to the abrupt and Eurocentric approach taken with the EU ETS. Furthermore, some efforts should be aimed at: reinforcing ICAO membership participation; moving beyond particular industry stakeholders; and improving education and communication with states regarding climate change and encouraging transparency.⁴⁰⁵

ICAO is subject to difficulties engaging state participation from those not already part of the Council and furthermore the Committee on Aviation Environmental Protection membership is deeply unbalanced so as to underrepresent developing states.⁴⁰⁶ ICAO can seek to overcome these weaknesses by: authorising ICAO's seven regional offices to enhance engagement with their constituent states; organise regional meetings to facilitate discussion, build trust and encourage consensus; and partner with industry stakeholders to facilitate capacity building via regional workshops in states usually uninvolved in aviation/climate negotiations.⁴⁰⁷

Additionally, the relationship between ICAO and industry stakeholders requires reassessment. Whilst industry-specific concerns are important, they should not be the sole basis against which policies are evaluated.⁴⁰⁸ Industry should be limited to participating, alongside society representatives, as opposed to leading the procedure which has downplayed the sector's contribution to climate change and the need to take urgent action.⁴⁰⁹

Moreover, IATA has an important continuing role to play. This includes: increasing awareness surrounding the crucial need to tackle aviation emissions, particularly for smaller airlines in developing states; and lobbying member airlines to pressure their respective states to make voluntary commitments and continue participating.⁴¹⁰

⁴⁰⁴ For a detailed analysis of achieving norm internalisation, see Finnemore and Sikkink, above n 183.

⁴⁰⁵ Valdes, above n 14, at 348.

⁴⁰⁶ At 348.

⁴⁰⁷ At 348-349.

⁴⁰⁸ At 349.

⁴⁰⁹ At 350.

⁴¹⁰ At 350.

Lastly, heightened and more forceful investor stewardship in the aviation industry is necessary to overcome the strategic opposition to stringent regulation. For example, 2021 has already seen climate lobbying resolutions filed to Delta and United Airlines in the United States, so investors may focus on utilising shareholder resolutions when faced with poor climate progress.⁴¹¹

VI Conclusion

This paper has canvassed various facets of the framework underlying the "aviation and climate change discourse" with a view to offering recommendations which may facilitate the internalisation of increased climate ambition within the aviation sector.⁴¹² In this respect, it has concentrated on the following: the backdrop to the aviation/climate change dialogue; the interaction between the Convention and the climate change regime; ICAO's "institutional setting" and its involvement in climate issues; CORSIA itself; the opportunities and limitations offered by soft and hard regulation; the lessons offered by the EU ETS; and the power of CSR to overcome participation challenges.⁴¹³

In light of the merits, flaws and missed opportunities of the current position, this paper concludes hard and soft regulation – i.e. a hardening of CORSIA and enhanced CSR - should be utilised as complements to achieve the goal of increasing CORSIA's ambition and thus states' obligations whilst maintaining state participation. Overall, international aviation emissions are a complex challenge which must be met with a multi-faceted solution involving various actors including ICAO, UNFCCC, states, the industry itself and society.

Based on the strengths and weaknesses of the recommendations proposed in Part V, the options ranked by priority in the short-, medium- and long-term are as follows.

In the short-term, the following steps should be taken:

- (1) Adjust CORSIA's target and include non-CO2 effects at first review in 2022;
- (2) Enhance and clarify CORSIA's enforcement mechanisms and non-compliance penalties;

⁴¹¹ Influence Map, above n 136.

⁴¹² Valdes, above n 14, at 353.

⁴¹³ At 353.

- (3) Incorporate international aviation into the Paris Agreement;
- (4) Negotiate and implement a long-term decarbonisation goal that aligns with Paris targets.

In the medium-term, the following steps should be taken:

- (1) Invoke stronger pressure from consumers and investors to incentivise action from the aviation industry;
- (2) Mandate CSR disclosure via domestic legislation;
- (3) Amend company law to include non-financial obligations;
- (4) Amend the Chicago Convention to strengthen ICAO's authority and reframe its objectives.

In the long-term, the following steps should be taken:

- (1) Following educative efforts and expansion of alternative climate-friendly transport options in the short- and medium-term, a strong push for behaviour change.

In sum, big strides were taken when ICAO member states agreed to form a global MBM but this is no silver bullet - momentum must continue. It is now time to squarely face the need for more ambitious climate action within the international aviation sphere, capitalising on the power of CSR and utilising the lessons provided by the failures of the EU ETS. All relevant stakeholders in the international aviation community, alongside investors and consumers must rise to this challenge. We must avoid the too little, too late scenario for any hope of a green future for aviation.

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