THE GEOGRAPHICAL SCOPE OF THE EU's CLIMATE RESPONSIBILITIES

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ABSTRACT

It is increasingly common for the EU to include extraterritorial GHG emissions within controversial and on more than one occasion the EU has been forced to back down. With this in mind, this paper asks how far the EU's climate change responsibilities ought to extend geographically. In answering this question, the paper draws a distinction between first-order and second-order climate responsibilities, acknowledges the importance of the internationally agreed 'system boundary' guidelines adopted by the Intergovernmental Panel on Climate Change, and seeks to learn lessons from the consequentialist approach that was favoured by the EU in giving broad geographical scope to its decision to include extraterritorial aviation emissions within the scope of its emissions trading scheme.

Key Words

European Union, Climate Change, Extraterritoriality, Production Process Methods (PPMs), Common but Differentiated Responsibilities (CBDR).

I. INTRODUCTION

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It is increasingly common for the European Union (EU) to include extraterritorial greenhouse gas (GHG) emissions within the scope of its climate change laws. These measures have proved to be fiercely controversial and, on more than one occasion, the EU has been forced to back down. The EU curtailed the geographical scope of its decision to include aviation in its emissions trading scheme (ETS).[1] And, in the face of sustained opposition from Canada and the United States, the EU's Fuel Quality Directive has been implemented in a manner that does not reflect the high extraction-phase emissions of fuel derived from feedstocks such as oil shale and tar sands.[2] These experiences have left EU lawmakers bruised, and the EU has decided for the time being not to include (extraterritorial) shipping emissions within its ETS.[3]

This paper tackles the question of whether, and if so when, it is appropriate for the EU to include extraterritorial GHG emissions within the scope of its climate change laws; using its market power to extend the geographical reach of its GHG mitigation efforts. This question is often framed in terms of whether the EU should adopt a consumption-based approach to climate change regulation, by tackling GHG emissions that are generated abroad but 'embodied' in products (goods and services) that are imported into the EU. This approach raises issues that have been much debated in WTO law, concerning the lawfulness (and legitimacy) of trade restrictions that regulate the manner in which imported products have been harvested or produced

[1] Council Regulation (EU) No 421/2014 [2014] OJ L129/4.

[2] The European Parliament narrowly failed to block a Council proposal under a regulatory committee with scrutiny procedure. The European Parliament's 'Motion for a Resolution' gives the clearest sense of what is at stake here (Text B8-0326/2014).

[3] The EU has adopted a regulation concerning the monitoring, reporting and verification (MRV) of GHG emissions from shipping which is an important first step: Regulation (EU) 2015/757 of the European Parliament and of the Council of 29 April 2015 on the monitoring, reporting and verification of carbon dioxide emissions from maritime transport, and amending Directive 2009/16/EC [2015] OJ L123/55.

(production process methods or PPMs) instead of or as well as intrinsic product quality.[4]

However, while the WTO debates raise an issue of systemic importance, this paper argues that it is important to note the particularity of the current construction of the climate change regulation setting. This is because, and in contrast to many other areas of regulation, there is a degree of international agreement about how responsibility for tackling the problem of climate change is to be apportioned between states. The Intergovernmental Panel on Climate Change (IPCC) has adopted a principally territorial approach to the task of apportioning GHG emissions, thereby creating a presumption in favour of states only including in-territory emissions within the scope of their climate change laws.

With this in mind, this paper asks how far the EU's responsibilities for climate change mitigation ought to be viewed as extending geographically. In answering this question, the paper draws a distinction between first-order and second-order climate responsibilities. When the EU exercises first-order climate responsibilities, it is claiming primary responsibility to regulate certain GHG emissions. When, by contrast, the EU exercises second-order climate responsibilities, it is claiming secondary (contingent) responsibility to regulate GHG emissions, whilst accepting that primary responsibility rests with a different state. The exercise of second-order climate responsibilities is intended to induce other states to discharge their first-order climate responsibilities and to ensure that they contribute their fair share to mitigating the threat of dangerous climate change. The paper uses the term 'responsibility' to mean moral rather than legal responsibility, although it takes the international legal framework constituted by the IPPC system boundary guidelines as the starting point for analysis and it endorses the view that our understanding of the EU's moral responsibilities should provide a guide for those who make and interpret the law.

[4] For a good, more general, discussion of the issue of extraterritoriality and environmental protection see MA Young, 'Trade Measures to Address Environmental Concerns in Faraway Places: Jurisdictional Issues' (2014) 23(3) *Review of European, Comparative and International Environmental Law* 312.

The responsibility-based argument put forward in the paper follow a 'logic of appropriateness'. In this, it stands in contrast to the more consequentialist reasoning that was favoured by some within the EU when they sought to justify the broad geographical scope of the EU's decision to include aviation in the ETS. The next part of this paper contrasts the responsibility-based frame that was favoured by the European Commission with the consequences-based frame that was subsequently adopted by the Aviation Working Group.

Part III of the paper draws upon the scholarship of Simon Caney who draws a distinction between 'burden-sharing' justice and 'harm-avoidance justice' and who uses this to build an argument that agents should be viewed as incurring both first-order and second-order climate responsibilities.

Part IV highlights the concept of a climate change 'system boundary' to situate the question of how GHG emissions are to be apportioned between states. This part of the paper introduces the system boundary guidelines that have been drawn up by the IPCC. Taking these guidelines into account, Part V identifies the three situations in which it is appropriate for the EU to exercise first-order climate responsibilities in relation to extraterritorial GHG emissions.

Part VI turns to the scope of the EU's second-order climate responsibilities and argues that when the EU assumes second-order climate responsibilities in relation to extraterritorial GHG emissions, the EU should ensure that its measures reflect the international legal principle of common but differentiated responsibilities and respective capabilities (CBDR).

Part VII sets out the advantages that flow from evaluating the geographical scope of EU climate change laws in terms of the EU's first and second-order climate responsibilities, arguing among other things that this approach allows us to construct a spectrum of climate change 'extraterritoriality' and, importantly, to delineate the scope of application of CBDR in the context of unilateral climate action. Part VIII concludes.

The focus of the paper is on climate change mitigation rather than adaptation. While the Aviation Directive provides the launching pad for analysis, the analysis is intended to be applicable to all other economic sectors as well. Likewise, while the

analysis focuses upon the EU, the arguments would also be pertinent to efforts to delimit the geographical extent of the climate change responsibilities of other states.

II. FROM A LOGIC OF APPROPRIATENESS TO A LOGIC OF CONSEQUENCES IN THE ADOPTION OF THE EU AVIATION DIRECTIVE

In 2005, the European Commission issued a Communication on 'reducing the climate change impact of aviation' and recommended the inclusion of aviation in the European Union's emissions trading scheme.[5] This Communication emphasized the scale of the EU's responsibility for greenhouse gas emissions from international aviation. While the EU's economy-wide GHG emissions fell by 5.5% from 1990-2003, the EU's aviation emissions increased by 73% in the same period.[6] Given that the EU did not consider it to be 'realistic' for the International Civil Aviation Organization (ICAO) to adopt a decision establishing specific measures to control international aviation emissions, the EU considered it necessary for it to adopt a unilateral act.

The Commission's communication was framed in a language of responsibility and it sought to justify why a particular course of action should be regarded as appropriate. Notwithstanding governance failures at the international level, the EU considered it to be incumbent upon it to take responsibility for *its* aviation emissions. While the communication did not clearly identify which connecting factor(s) should be used to apportion responsibility for particular GHG emissions to particular states,[7] the Commission was nonetheless adamant that it was '*the EU's'* international aviation emissions that the intervention was intended to address.

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[5] COM (2005) 459 final, Reducing the Climate Change Impact of Aviation.

[6] Contributing 3% of global GHG emissions at this time, the Commission observes that aviation emissions would become a 'major contributor if current trends continue'.

[7] The Communication adopts a different approach at different times, sometimes referring to emissions generated by departing flights (point 1) and at other times emissions reported to the UNFCCC (point 4.3). Reported emissions are calculated by reference to the volume of aviation fuel sold within a specific state. The Commission states explicitly that its preferred indicator of EU responsibility is EU-departing flights (point 7).

The Commission's emphasis upon the EU's responsibilities reflected a 'logic of appropriateness', concerned as it was with how the EU ought to behave.[8] When actors are driven by a logic of appropriateness, they seek to align their behavior with existing norms, including legal norms, and to ensure that their behavior is consistent with their constructed identity. In keeping with this, the Commission's proposal to include aviation in the ETS reflected the weight that it attached to the international legal framework constituted by the Kyoto Protocol. It argued that it was important for the EU, as a regional organization comprising rich states, to take the lead in tackling GHG emissions, thereby ensuring that rapidly rising aviation emissions would not have the practical effect of undermining the emission reduction commitment that the EU had signed up to under the Kyoto Protocol. The Commission's proposal also reflected the EU's self-identity as a global leader in climate change mitigation, searching for solutions to the regulatory challenges presented by this problem that could in time be replicated internationally and by other states.

However, the Commission's emphasis upon the EU's responsibility for *its* aviation emissions, following a logic of appropriateness, was soon eclipsed. The Aviation Working Group set up by the Commission assessed the question of which international aviation emissions should be included within the ETS on the basis of six key criteria: environmental effectiveness, economic distortions for airlines, impacts on EU airports, impacts on EU tourism, impacts on the EU's ultra-peripheral regions and the suitability of the model for global expansion.[9] All but the first of these criteria

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[8] On the distinction between a logic of appropriateness and a logic of consequences see JG March & JP Olsen, 'The Logic of Appropriateness', Arena Working Papers WP 04/09. It is helpful to view these two logics as being situated at either end of a spectrum rather than as a binary distinction. Most decisions involve elements of both and the relevant question is which logic is dominant in the decision-making process.

[9] See Annex II, Meeting 1, Aviation Working Group, 'Final Report' (April 2006). See also, Minutes of Meeting 1, p. 6. The Commission's Impact Assessment adopted a similar approach stressing that a geographically expansive approach would deliver the biggest environmental benefits, be neutral from a competition point of view and have a reduced impact on EU tourism (SEC (2006) 1684, 'Impact Assessment of the

(environmental effectiveness) emphasized the economic consequences that the decision to include aviation in the ETS would entail for the EU. In keeping with a 'logic of consequences', the Aviation Working Group looked beyond existing normative frameworks and shared perceptions of the common good, to focus in significant measure upon the issue of how best to protect the EU's economic interests.

The Working Group's explicit emphasis upon these more detailed considerations, including clearly self-serving criteria in place of the high-flown language of responsibility, led it to identify and implicitly to favour a new option for encompassing aviation in the ETS.[10] This was geographically broader than the previous options under consideration in that it included all the en-route emissions of both EU-departing and EU-arriving flights. In relation to a flight from San Francisco to London where only 9% of the emissions occur within EU airspace, this proposal would now include the entire en-route emissions in the ETS.

This shift in the mode of framing the decision to include aviation in the ETS was firmed up when in 2008 the EU adopted a Directive to include international aviation in the ETS.[11] Consistent with the position of the Aviation Working Group, this endorsed a broad geographical approach, providing for the inclusion of the worldwide emissions of both EU-departing and EU-arriving flights. This was subject to the possibility of amending the Directive if global agreement on reducing the GHG emissions from aviation was reached. Likewise, it was open to the EU to exclude emissions from EU-arriving flights where the country of departure had itself adopted (EU-equivalent) measures to reduce the climate change impact of EU-bound flights.[12]

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inclusion of aviation activities in the scheme for greenhouse gas emission allowance trading within the Community', section 6.3.

[10] The Aviation Working Group reports that this new option was put forward by the low cost airlines and environmental NGOs. However, this option had already been identified in the preliminary impact assessment prepared by the Commission. See SEC (2005) 1184, 'Reducing the Climate Change Impact of Aviation', p. 28.

[11] Directive 2008/101 [2009] OJ L8/3.

[12] Directive 2003/87 [2003] OJ 275/32, Art. 25a.

As has been widely reported, the EU's Aviation Directive provoked a storm of protest from many within the aviation industry and from a significant number of developed and developing country governments.[13] The EU's opponents took issue with the unilateral and 'extraterritorial' nature of the Directive, arguing that it would inhibit future multilateral cooperation on climate change and that it infringed unduly upon the sovereignty of non-EU states. They objected also to the fact that the revenue raised as a result of the EU's decision to include international aviation in the ETS was to accrue to the EU Member States and was available for use at their discretion. They also claimed that the measure was incompatible with the principle of CBDR in that it was premised upon the equal treatment of developed and developing countries and their airlines.

Much opposition to the EU's Aviation Directive was couched in righteous language. The logic of consequences that was favoured by the Aviation Working Group, which sought to shape the Aviation Directive in a manner that was economically beneficial for the EU, was contested principally on the basis of a logic of appropriateness. The EU's opponents emphasized the seriousness of the threat posed by climate change and acknowledged the grave importance of tackling this pressing global problem. But they similarly expressed their clear and unshakeable conviction that the EU - by acting unilaterally and extraterritorially - had behaved in a deeply inappropriate way. The EU's opponents emphasized the importance of achieving global agreement on how to reduce aviation emissions and argued that the EU's unilateral measure was inconsistent with a range of international agreements and with established norms of customary international law. While it is clear that the EU's opponents often masked their self-interested economic concerns beneath a veneer of righteous indignation,[14] their criticisms nonetheless served to expose a justification deficit in relation to the 'extraterritorial' effect of EU climate change law.

It is in light of this justification deficit that this paper takes shape. It asks a normative question about how far – geographically – the EU's responsibility for climate change should be viewed as extending. It assesses the circumstances in which it is appropriate

[13] For a wonderfully well-informed overview see Sandbag, 'Aviation and the EU ETS: What happened in 2012 during "Stop the Clock"' (December 2013).

[14] This is borne out by Sandbag's rich analysis, ibid.

for the EU to include extraterritorial GHG emissions within the scope of its climate change law. More specifically, the paper returns to the European Commission's original appropriateness-responsibility frame and uses this to demarcate the geographical extent and limits of EU action on climate change.

III. FIRST-ORDER AND SECOND-ORDER CLIMATE RESPONSIBILITIES

The analysis in this article draws upon a distinction elaborated by the political philosopher Simon Caney between first-order and second-order climate responsibilities.[15] Caney views first-order climate responsibilities as consisting of an agent's obligation to do its 'fair share' to address climate change according to the tenets of 'burden-sharing justice'.[16] However, he does not consider that an agent's climate responsibilities stop there. Because it is inevitable that some agents will fail to comply with the first-order climate responsibilities, he argues that other agents have second-order climate responsibilities that require them to make efforts to induce non-compliant agents to step into line. This might be summed up as 'do your share and encourage/induce others to do theirs to protect the potential victims of climate change.'

According to Caney, second-order climate responsibilities arise for two reasons. On the one hand, they arise because some agents have failed to fulfill their first-order climate responsibilities. These 'non-compliant' first-order agents have, as such, acted inappropriately. On the other hand, they arise because it is incumbent upon second-order agents to do what they can to minimize the threat of dangerous climate change. This (moral) obligation arises due to the severity of the negative consequences that

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[15] S Caney, 'Two Kinds of Climate Justice: Avoiding Harms and Sharing Burdens' (2014) 21(4) *Journal of Political Philosophy* 125.

[16] Ibid, p. 125. The polluter pays principle is one of the principles that is most frequently used as a basis for allocating responsibility between states. One of the merits of Caney's scholarship is that he clarifies the limitations of a pure polluter pays principle-based approach. The UNFCCC incorporates the principle of CBDR which places emphasis upon the scale of a country's contribution to the problem of climate change (responsibility) and the capacity of a country to contribute to tackling the problem (capability). See Article 3(1) UNFCCC.

would otherwise ensue for those who would suffer its destructive effects. It is because of the need to protect the entitlements of the potential victims of dangerous climate change that Caney characterizes second-order climate responsibilities as contributing to the realization of 'harm-avoidance justice'.[17]

Caney appeals to human rights to justify his account of second-order climate responsibilities.[18] He considers that persons have certain 'fundamental interests', 'entitlements' or rights which are sufficiently weighty to create corresponding obligations for others. In a climate change context:

> People have fundamental interests in not suffering from (a) drought and crop failure; (b) heatstroke; (c) infectious diseases….; (d) flooding and the destruction of homes and infrastructure; (e) enforced relocation; and (f) rapid,

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[17] Ibid, p. 126. Given the role played by harm-avoidance in relation to second-order climate responsibilities, a'logic of consequences' is not completely absent from Caney's account of second-order climate responsibilities. However, it is only appropriate for agents to exercise second-order climate responsibilities when other agents have acted in an inappropriate way. Thus, while power plays a role in determining the scope of an agent's responsibilities, this is only true within the boundaries that have already been set following the logic of appropriateness that is inherent in the concept of burden-sharing justice. In keeping with March & Olsen's account, Caney's mode of reasoning thus *predominantly* follows a logic of appropriateness (March & Olsen state that in a logic of appropriateness 'the processes of reasoning are not *primarily* connected to the anticipation of future consequences'. See note 8 above, p. 4). This logic of appropriateness is further reinforced in the account that follows due to the importance that it attaches to the existing international legal framework for apportioning GHG emissions between states as elaborated by the IPPC as well as the UNFCCC principle of CBDR.

[18] This becomes clearer in See S Caney, 'Cosmopolitan Justice, Responsibility and Global Climate Change' (2005) 18 *Leiden Journal of International Law* 768. See also his 'Climate Change, Human Rights and Moral Thresholds' in S Humphreys (ed.), *Human Rights and Climate Change* (CUP, 2010). Caney accepts that human rights are just one possible justification for the existence of second-order climate responsibilities.

> unpredictable and dramatic changes to their natural, social and economic world.[19]

The nature and extent of the second-order climate responsibilities that these fundamental interests are capable of generating depends upon the nature and extent of an individual agent's power. Caney invokes a power-responsibility nexus to attribute second-order climate responsibilities to agents who are in a position to make a 'valuable difference' in mitigating the threat of dangerous climate change.[20] These agents incur a moral responsibility to exploit their power to 'structure [social, economic and political] contexts in a way that may induce other agents to comply with their first-order responsibilities'.[21] Caney conceives of power in a multi-faceted

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[19] Ibid, p. 768. For a similar argument that human rights may generate secondary 'duties to protect and provide' see JW Nickel, 'How do Human Rights Generate Duties to Protect and Provide?' (1993) 15 *Human Rights Quarterly* 77. These duties may take the form of legal duties in particular situations, the clearest example being the second-order duties incurred by 'bystander states' to do all that they reasonably can to prevent genocide in other states. For a discussion see L Glanville, 'The Responsibility to Protect Beyond Borders' (2012) 12(1) *Human Rights Law Review* 1. The prohibition on genocide is considered to be a peremptory norm of international law.

[20] Caney, 'Two Kinds of Climate Justice', note 15 above, p. 141. This raises a threshold question and it will be for agents to determine a *de minimis* threshold below which they consider their efforts not to be worthwhile. In the context of the argument in this paper, agents will be expected to give reasons to explain why they have or have not chosen to exercise second-order climate responsibilities in the light of this.

[21] Ibid, p. 135. See also A Nollkaemper, 'Power and Responsibility' in A Di Stefano (ed.), *A Lackland Law? Territory, Effectiveness and Jurisdiction in International and European Law* (Giappichelli, 2014). In this, Nollkaemper unpacks the power/responsibility nexus and examines the role of law in constituting and legitimizing power as well as constraining power. For example, a country's 'market power' will depend ultimately upon the degree of regulatory autonomy that it enjoys under WTO law. He also points out that international law often shields powerful states from incurring international legal responsibility.

way, as encompassing ideational (knowledge shaping) and epistemic (knowledge creation) authority as well as material or structural power linked to the control and mobilization of military, economic and institutional resources (amongst others).

Caney offers us a relatively unconstrained account of second-order climate responsibilities and inducement modalities, although he states that second-order climate responsibilities cease to exist when their exercise would be excessively onerous for the intervening state.[22] By contrast, this paper puts forward a relatively narrow normative claim; arguing that the EU's second-order climate responsibilities make it incumbent upon the EU to use its *market power* in an effort to induce other agents to comply with their first-order climate responsibilities.[23] The implications and contours of this normative claim are explored in detail below.

First though, it is important to acknowledge the difficulties and dangers inherent in Caney's approach. Caney uses the term 'compliance' in assessing whether an agent has fulfilled its first-order climate responsibilities. This creates the impression that the answer to the question of who has done their 'fair share' to mitigate the threat of dangerous climate change is clear. But, as Caney himself accepts, the tenets of burden-sharing justice are deeply contested, leaving room for vigorous disagreement

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[22] The introduction of the condition that second-order climate responsibilities should not be too onerous for the state exercising these reflects the distinction between an absolute duty not to cause harm and a non-absolute duty to rescue people from harm or to prevent others from causing harm. For one clear expression of this see L Murphy, *Moral Demands in Nonideal Theory* (OUP, 2000). For a fuller account of the possible limits see S. Caney, *Justice Beyond Borders: A Global Political Theory* (OUP, 2005), esp. chap. 7 on humanitarian intervention.

[23] On the EU as a 'market power' see C Damro, Market Power Europe' (2012) 19(5) *Journal of European Public Policy* 682, S Lavenex, 'The Power of Functionalist Extension: How EU Rules Travel' (2014) 21(6) *Journal of European Public Policy* 885 and J Scott, 'Extraterritoriality and Territorial Extension in EU Law' (2014) 62(1) *Am J. Comp. L.* 87 For a parallel argument framed in terms of experimentalist governance see CF Sabel & DG Victor, 'Governing Complex Global Problems: Decomposition and Experiment in Climate Policy', forthcoming, *Climate Policy*.

about which agents, including which states, should be viewed as having done 'enough'.

Against this backdrop of contestation, there is a real danger that powerful agents will seek to use the concept of second-order climate responsibilities to 'pass the buck', by imposing the costs of mitigating climate change on agents other than themselves. It is because of this that Caney defends second-order climate responsibilities as part of a broader theory of climate justice that emphasizes the limits of what may be asked of first-order agents.[24] In the context of the discussion in this paper, there is a danger that the EU may use the concept of second-order climate responsibilities, and the strength of its market power, to distribute first-order climate responsibilities in a manner that is skewed in its or others (e.g. all Annex I states') favour. This danger of abuse will be addressed in Part VI below. Awareness of this danger suggests that judicial and quasi-judicial bodies will have an important role to play in delimiting the circumstances and conditions in which the EU may lawfully exercise its second-order climate responsibilities. The role of courts will also be addressed below.

IV. THE IPCC TERRITORIAL 'SYSTEM BOUNDARY' GUIDELINES

Before exploring the extent of the EU's second-order climate responsibilities, it is necessary to introduce the concept of a climate change 'system boundary' as a way of thinking about how far the EU's responsibilities for climate change should be viewed as extending geographically.

The concept of a climate change 'system boundary' is used to describe the mode of apportioning responsibility for Greenhouse Gas Emissions (GHG) emissions among different agents, including prominently among states.[25] The United Nations Framework Convention on Climate Change (UNFCCC) which entered into force in 1994 operates on the basis of a system boundary that is principally territorial in nature. This territorial system boundary was elaborated by the Intergovernmental

[24] See, for example, supra note 18.

[25] GP Peters, 'From Production-Based to Consumption-Based National Emission Inventories' (2008) 65(1) *Ecological Economics* 13.

Panel on Climate Change (IPCC) and is laid down in specific IPCC Guidelines on this theme (the IPCC system boundary guidelines).[26]

Subject to limited exceptions, a territorial system boundary may be considered to be 'production-based' in that it apportions emissions to the state in which productive activities take place.[27] For example, according to a territorial system boundary, GHG emissions that are generated in the course of producing steel will be apportioned to the country in which the steel is produced rather than the country in which the steel is consumed.

The implications and appropriateness of relying upon a territorial or production-based system boundary has formed the subject of considerable debate in both academic and policy circles.[28] This is because '[a]round one-third of energy consumption and one-quarter of climate related emissions are from the production of goods and services which are consumed in a different country to which they were produced'.[29] It is therefore often the case that a territorial system boundary fails to acknowledge the responsibility of consumers for the GHG emissions that are embodied in the products they consume. From the perspective of a territorial or production-based system boundary, the GHG emissions of developed countries (so called Annex I countries) appear to have levelled off in recent years, whereas from the perspective of a

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[26] Intergovernmental Panel on Climate Change, *2006 Guidelines for National Greenhouse Gas Inventories*.

[27] See A Bows & J Barrett, 'Cumulative emission scenarios using a consumption-based approach: a glimmer of hope?' (2010) 1(1) *Carbon Management* 161, who offer one example of a situation in which territorial and production-based system boundaries diverge.

[28] For a good discussion providing general context as well as a UK case study see J Barrett et al, 'Consumption-based GHG emission accounting: a UK study' (2013) 13(4) *Climate Policy* 451.

[29] GP Peters, RM Andrews & J Karstensen, 'Integrating consumption and international trade into energy and climate policy' (Center for International Climate and Environmental Research – Oslo (CICERO), 2012).

consumption-based system boundary they have continued to rise at an annual rate of approximately10%.[30]

Although the suitability of a territorial system boundary for GHG emissions has been repeatedly questioned, there is little appetite to re-open negotiations on this subject within the UNFCCC. A territorial system boundary therefore remains in place. The IPCC system boundary guidelines have been endorsed by the Conference of the Parties to the UNFCCC, notably for use by Annex I parties.[31] Annex I parties are required to use the IPCC's 2006 Guidelines in preparing their national communications to the UNFCCC, and in estimating and reporting their GHG emissions.

While the IPCC system boundary guidelines are binding on Annex I parties when they estimate and report on their GHG emissions to the UNFCCC, they are not stated to be binding when parties adopt unilateral measures to combat climate change. While Article 3(5) of the UNFCCC provides that measures taken to combat climate change, including unilateral ones, 'should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade', it does not specify the circumstances in which parties are entitled to include extraterritorial GHG emissions within the scope of their unilateral acts. Article 3(5) includes language which is similar to the language contained in the opening paragraph of the general exception in GATT, Article XX.[32] The question of whether states may rely upon this exception to

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[30] See Bows & Barrett, note 27 above, p. 168 (from 1992 to 2006).

[31] See e.g. Decision 24/CP.19 (2014), 'Revision of the UNFCCC reporting guidelines on annual inventories for Parties included in Annex I to the Convention'; and Decision 17/CP.8 providing that non-Annex I countries should use the IPCC's revised 1996 Guidelines. Annex III of Decision 2/CP.17 provides that non-Annex I countries should use the methodologies established by the latest UNFCCC guidelines for the preparation of national communications from non-Annex I Parties approved by the Conference of the Parties (COP) or those determined by any future decision of the COP on this matter. As things stand, the 2006 Guidelines do not appear to have been approved by the COP for use by non-Annex I countries.

[32] This opening paragraph specifies that measures shall not give rise to arbitrary or unjustifiable discrimination *between countries where the same conditions prevail*.

defend production process measures (PPMs) has long been a fraught issue in WTO law. However the clear direction of travel is in favour of allowing states to rely on the Article XX exception to defend regulations that seek to influence activities that take place abroad.[33]

While the IPCC system boundary guidelines do not bind the EU when it comes to the task of determining the geographical scope of its unilateral climate change measures,[34] these guidelines nonetheless contain the only internationally agreed methodology for apportioning responsibility for GHG emissions between states. They have been agreed to by each of the 195 countries, and the EU, that make up the Conference of the Parties to the UNFCCC. Therefore, these guidelines should be regarded as commanding *some* authority when states address the question of when they may include extraterritorial GHG emissions within the scope of their climate change law. It is for this reason that this paper treats the IPCC system boundary guidelines as having created a rebuttable presumption in favour of a territorial system boundary. It takes the view that states that wish to depart form a territorial system boundary incur a duty of justification that requires them to put forward compelling reasons to explain why a territorial system boundary should not be regarded as appropriate in the circumstances at hand.

This paper argues that there are four situations in which it is appropriate for states to depart from a territorial system boundary when delimiting the geographical scope of their unilateral climate change acts. The first of these situations will be uncontroversial because it is consistent with the IPCC system boundary guidelines. The second situation involves the plugging of a system boundary gap that has been left by the IPCC's system boundary guidelines. The third and fourth situations entail

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[33] Some doubts remain whether an importing country may condition access to its market on the exporting country's laws or policies as opposed to the conditions under which a particular shipment of a product were produced. See D Regan, 'How to Think about PPMs (and Climate Change)' in T Cottier, O Nartova and SZ Bigdeli, *International Trade Regulation and the Mitigation of Climate Change* (CUP, 2009).

[34] It would not be convincing to argue that the IPCC's 2006 Guidelines have attained the status of customary international law in so far as the adoption of unilateral acts by states is concerned.

reasoned departures from these guidelines. While the first three situations as set out in Part V of this paper and should be viewed as involving the exercise of first-order climate responsibilities, the fourth situation that is discussed in Part VI should be viewed as involving the exercise of second-order climate responsibilities.

V. FIRST-ORDER CLIMATE RESPONSIBILITIES

A. *IPCC-endorsed departures from the territorial system boundary*

The IPCC system boundary guidelines endorse departure from a territorial system boundary in a number of strictly defined circumstances.[35] The rationale for these departures is not spelt out.

For example, carbon dioxide emissions from commercial road vehicles are not attributed to the state in which they are generated, but to the state in which the fuel is sold to the end user, even in relation to emissions that are generated outside of that state. So, for example, for a Russian registered lorry that fills up with diesel in the Ukraine before entering Belarus, the GHGs produced in Belarus on that tank of diesel would be apportioned to Ukraine. This departure from a territorial system boundary facilitates effective monitoring, reporting and verification of GHG emissions. It nonetheless only applies to road transport and not in general to other forms of transportation such as aviation and shipping which will be discussed below.

Similarly, emissions that result from fuel that is used in coastal and deep sea fishing are to be allocated to the country delivering the fuel, even where these emissions are generated by vessels operating in the coastal waters of a different country or on the High Seas. It is clear that in areas outside national jurisdiction, such as the High Seas, a territorial system boundary would leave certain GHG emissions outside of the responsibility of any state.

To give just one more example of an IPPC-sanctioned departure from a territorial system boundary; emissions that result from the injection and possible leakage of carbon dioxide stored in geological formations (carbon capture and storage) will be allocated to the country in whose national jurisdiction or by whose international right

[35] See note 26 above, Chapter 8.2.1. This is not an exhaustive description of the exceptions set out in Chapter 8.2.1.

the point of injection is located. This will remain the case even in respect of carbon dioxide leaked from a geological formation that crosses a national boundary.

B. System boundary gaps

The IPCC's system boundary remains unsettled as far as international shipping and international aviation are concerned.[36] While a variety of different options have been discussed, to date no international agreement has been achieved. [37] While the IPCC system boundary guidelines provide for the use of fuel consumption data or ship/flight movement data, they do not specify the basis on which fuel consumed or ship/flight movements are to be attributed to states. Hence they do not settle the question of which GHG emissions should be regarded as falling within the first-order climate responsibilities of particular states. Consequently, there is a 'system boundary gap'.

Where the international system boundary remains unsettled or unspecified in this way, states should be viewed as enjoying autonomy in determining how far their first-order climate responsibilities should geographically extend. They should, however, be required to exercise this autonomy in a manner that is respectful of the autonomy of

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[36] Ibid, para. 8.2.1, Volume 1 IPCC Guidelines and chapters 3.5 (water borne transportation) & 3.6 (civil aviation) of Volume 2 of the IPCC Guidelines.

[37] P Gilbert P & A Bows, 'Exploring the scope for complementary sub-global policy to mitigate CO2 from shipping' (2012) 50 *Energy Policy* 613 and A Bows-Larkin, 'All adrift: aviation, shipping, and climate change policy' *Climate Policy* 1. In Table 1, these authors set out the different apportionment regimes for shipping, breaking these down into producer-based and consumer-based schemes. For example, one way of implementing a consumer-based scheme would involve apportioning responsibility for shipping emissions to the country importing the freight. As with fishing on the High Seas, a territorial approach to apportioning GHG emissions from international aviation and international shipping would leave a significant volume of emissions beyond the responsibility of any state. See also T Smith, E O'Keeffe and S Haji, 'What is a Fair Measurement and Apportionment Scheme?' Proceedings Paper, Low Carbon Shipping 2013 http://www.lowcarbonshipping.co.uk/files/ucl_admin/LCS%202013/Smith_et_al.pdf.

other states. This is in keeping with the principle of sovereign equality in international law. To this end, the gap-filling system boundary that is endorsed by a state must be susceptible to replication by all other states (or at an international level) without this resulting in the double counting of the GHG emissions concerned.[38] It is only where this 'replication test' is met that a state may reasonably claim to be exercising first-order climate responsibilities even when they are filling a system boundary gap.

This may be illustrated by reference to the EU's Aviation Directive. The European Commission originally favoured an approach that rested upon the inclusion within the ETS of all EU-departing flights. If this all-departing flights option had been replicated by all other states, no double counting of GHG emissions from aviation would have occurred. Ultimately, however, the EU's Aviation Directive covered the worldwide emissions of both EU-departing and EU-arriving flights. If other states had replicated this two-way system boundary, aviation emissions would have been subject to double-counting in that they would be regulated by both the arrival and the departure state.

In this example, it would be open to the EU to decide to exercise first-order climate responsibilities in relation to the worldwide emissions of either EU-departing or EU-arriving flights. However, where the EU settles upon a two-way option, including both EU-departing and EU-arriving flights, it should be viewed as exercising second-order climate responsibilities over either EU-departing or EU-arriving flights.

The design of the Aviation Directive implies a recognition of this on the part of EU. While this measure was emphatic in its inclusion of EU-departing flights, it was tentative in its inclusion of EU-arriving flights. As noted previously, EU-arriving flights could be exempted from the ETS where they departed from a country that had taken steps to address the climate change impact of these flights. Here, the EU's intervention was rendered conditional or contingent upon the adequacy or otherwise of the climate change measures that had been put in place by another state. A

[38] This is not to say that no double-counting will occur because other states may exercise their system boundary autonomy in a different way. It is simply to say that double-counting would not occur if other states were to adopt the same system boundary.

conditional intervention of this kind implies an acceptance by the EU that it is exercising second-order climate responsibilities by acting as a surrogate regulator, 'taking up the slack'[39] in the system because of the regulatory inertia of a more appropriately placed state. We will return to the theme of second-order climate responsibilities below.

C. The nature of the EU policy intervention

The EU deploys a wide variety of different instruments in its efforts to reduce GHG emissions and to mitigate climate change. It can:

- reward low-carbon products by making producer or consumer subsidies available or by setting a mandatory consumption target in relation to these products and/or
- penalize high-carbon products by excluding them from the market or by levying a higher charge upon those who produce them within the framework of the ETS.

These policy instruments can have a considerable impact on the competitive position of different products on the EU market. These initiatives may induce producers of products to favour certain inputs over others or persuade consumers to alter their purchasing preferences. This then raises the question of whether the EU may be viewed as exercising first-order climate responsibilities over extraterritorial GHG emissions specifically because of the nature of the policy intervention that the EU has put in place.

This paper argues that the answer to this question is yes. More particularly, where imported products (goods or services) are accorded a highly privileged position within the EU market as a result of an EU policy intervention that is specifically intended to reward these products due to their climate credentials, the EU should be viewed as exercising first-order climate responsibilities when it regulates the extraterritorial GHG emissions that are embodied within these products. Where the EU voluntarily choses to confer special privileges on products which go beyond those which are

[39] A Schwenkenbecher, 'Bridging the Emissions Gap: A Plea for Taking up the Slack' (2013) 3(2) *Philosophy and Public Issues* 271.

normally available on the EU market, it should be viewed as enjoying special regulatory prerogatives as well. We see a similar dynamic at play in the EU's Generalized System of Preferences which confers additional tariff preferences, and hence a market place advantage, on products that originate in countries that demonstrate compliance with specified international conventions.[40]

Although it is not unreasonable for the EU to invoke the principle of reciprocity in this way, it is nonetheless far from straightforward to demarcate the outer boundaries of the special regulatory prerogatives that this should entail. After all, virtually all EU climate change legislation will serve to place low-carbon products in a privileged position within the EU market. This paper argues that special privileges should give rise to special regulatory prerogatives in two closely related sets of circumstances, and that in these circumstances it is appropriate for the EU to exercise first-order climate responsibilities in relation to the extraterritorial GHG emissions that are embodied in the imported products concerned.

- Where the EU market for the product in question owes its very existence to an EU policy intervention that is intended to reward 'climate-friendly' products; and
- Where the EU market for the product in question is significantly increased in size as a result of an EU policy intervention that is intended to reward 'climate-friendly' products.

The EU's Renewable Energy Directive (RED) which lays down sustainability criteria for biofuels is perhaps the clearest example of an EU measure that confers a significant market-place advantage on 'climate-friendly products in this way.[41] Where

[40] Regulation (EU) 978/2012 [2012] OJ L303/1. The list of relevant conventions is included in Annex VIII. We see a similar dynamic at play in the area of public procurement law.

[41] Directive [EU] 2009/28 [2009] OJ L140/16. The EU market for Certified Emission Reductions (CERs) within the framework of the Clean Development Mechanism would be an example of a market that would not exist but for an EU public policy intervention that is intended to reward CERs for the positive climate credentials. As a

the making available of financial incentives for biofuels, or the entrenchment of a mandatory market share for transport biofuels of 10%,[42] leads to a significant increase in the size of the EU market for transport biofuels, it is appropriate for the EU to include extraterritorial GHG emissions that are embodied within imported biofuels within the scope of its climate change laws.[43] The inclusion of sustainability criteria within the RED can be justified as a result.

The RED also illustrates the kind of safeguard that should be put in place to ensure that the EU does not make place regulatory demands upon imported products that are out of proportion with the advantages that the EU's climate-oriented policy intervention serves to confer. In this example, where suppliers of biofuels that are placed on the EU market decide that they do not want access to financial incentives (subsidies) and that they do not expect their products to be counted towards the EU's mandatory biofuels target, the obligation to comply with the EU's sustainability criteria no longer applies.[44] Hence, it is for the supplier of the product to make an assessment of whether the 'extras' on offer from the EU are sufficiently valuable to persuade it to accept the contention that extraterritorial GHG emissions fall within the EU's first-order climate change responsibilities.

It is, however, important to stress that when a supplier does not accept this contention and chooses to eschew the special market-place advantages on offer, the EU may still be justified in including extraterritorial GHG emissions within the scope of its climate change laws. In this scenario, however, the EU may only do so only when it can justify this as involving the exercise of second-order rather than first-order climate responsibilities.

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result, according to the argument being made here, it would be appropriate for the EU to exercise first-order climate responsibilities in relation to the market for CERs, thereby justifying the qualitative criteria that the EU has put in place to ensure the authenticity and additionality of the 'foreign' emission reductions that generate the existence of these CERs.

[42] Ibid, Article 3(4).

[43] This 10% target has recently been reduced to 7%.

[44] See note 41 above, Article 17(3).

VI. SECOND-ORDER CLIMATE RESPONSIBILITIES: THE EU AS A SURROGATE REGULATOR

With the exception of measures that fall within Part V as set out above, a decision by the EU to include extraterritorial GHG emissions within the scope of its climate change law should be viewed as involving the exercise of second-order climate responsibilities. When an agent exercises second-order climate responsibilities, it is claiming contingent or provisional responsibility for extraterritorial GHG emissions within a particular industrial or agricultural sector. It is doing so with a view to inducing 'non-compliant' agents to fulfill their first-order climate responsibilities in the sector concerned. In this situation, the EU is acting as a surrogate regulator. In the absence of agreement about how the effort required to mitigate climate change should be distributed between states, it will be incumbent upon the EU to elaborate criteria to evaluate which states have and have not done their fair share to mitigate the risk of dangerous climate change.

There is currently no workable benchmark enshrined in public international law that can be used to evaluate the adequacy of the mitigation effort made by individual states.[45] Only thirty-seven countries, including the twenty-eight Member States of the EU, have accepted emission reduction commitments for the period 2013 to 2020 under an amendment to the Kyoto Protocol.[46] While Annex I countries have agreed to take measures on the mitigation of climate change, by limiting their GHG emissions and by protecting and enhancing their GHG sinks and reservoirs,[47] this rather general obligation is not very helpful when it comes to elaborating a benchmark for assessing which states should be regarded as having done 'enough'.

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[45] Parties to the UNFCCC have agreed that temperature rises should be kept at below a global average of 2 degrees Celsius at the Cancun climate conference in 2010.

[46] See decision 1/CMP.8. Australia's emission reduction commitment for the period 2013-2020 is 0.5% relative to a 2000 baseline. The Doha Amendment to the Kyoto Protocol only covers 15% of global GHG emissions. This amendment has not yet entered into force.

[47] UNFCCC, Article 4(2)(a).

While the draft negotiating text for the climate summit to be held in Paris in late 2015 requires countries to explain how they consider their intended nationally determined contribution (INDC) to be 'fair and ambitious, in light national circumstances,[48] there is no formula for evaluating whether a state's INDC is indeed fair and ambitious and no agreement on whether a country's INDC should be subject to *ex ante* or *ex post* assessment or review.[49]

In view of this, it is hardly surprising that there is frequent disagreement about which states are currently contributing enough to mitigating the threat of dangerous climate change. While this is true in relation to all countries, it can be readily illustrated by reference to the EU. The EU is committed to reducing greenhouse gas emissions to 80-95% below 1990 levels by 2050.[50] To this end, it has endorsed a unilateral emission reduction commitment of 20% by 2020 and 40% by 2030.[51] The EU considers these commitments to be ambitious and sufficient to put the EU 'on track to reach a GHG reduction of between 80-95% by 2050, consistent with the internationally agreed target to limit atmospheric warming to below 2°C'.[52] There are, however, many who disagree. Drawing upon research published in the Philosophical Transactions of the Royal Society, Kevin Anderson has condemned the EU's 2030 emission reduction target of 40%. He argues that this implies an 'inequitable apportionment of the remaining 2°C carbon budget' and that the EU must pursue 'an equitable and science-based 2030 decarbonisation target of around 80%'.[53]

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[48] Dec. 1/CP.20, 'Lima Call for Climate Action', para. 14.

[49] Ibid, part J. See also L Rajamani, 'Lima Call to Climate Action: Progress Through Modest Victories and Tentative Agreements' (2015) Vol L-No 1 *Economic and Political Weekly*.

[50] COM(2011) 112 final, 'A Roadmap for moving to a competitive low carbon economy in 2050', p. 2.

[51] COM(2014) 015 final, 'A policy framework for climate and energy in the period from 2020 to 2030. This states that no international credits will be allowed after 2020 unless the outcome of international climate negotiations warrants a more ambitious target for the EU', point 2.1.

[52] COM(2013) 169 final, 'A 2030 framework for climate and energy policies', p. 3.

[53] K Anderson, 'Open Letter to the EU Commission president about the unscientific

The London-based campaigning organization, Sandbag, uses 1990 population levels to calculate the carbon budget of states up to 2050. It allocates the EU-27 a 9% share of the global GHG emissions budget. It does not take historical responsibility for GHG emissions prior to 1990 into account and it does not incorporate post-1990 increases in nations' population into its 'sovereign emissions rights framework'.[54] The Sandbag model is therefore very favourable to the EU. Nonetheless, Sandbag still reaches the conclusion that the EU-27 had already used 57% of its 2050 carbon budget by 2012.[55] Assuming a 2030 emission reduction target of just less than 40%, Sandbag calculates that international credits (carbon offsets) would have to be used by the EU to cover 42% of its emissions from 2020 to 2050.[56] This sits uncomfortably with the EU's insistence that no international credits will be used after 2020 to achieve the EU's 40% 2030 target.[57]

The environmental consultancy Ecofys has also evaluated the level of ambition inherent in the EU's 40% emission reduction target for 2030. Assuming a 50% chance of exceeding 2°C by the end of the century, Ecofys sets out how much the EU's emissions would have to decline after 2030 for it to avoid using more than its 'fair share' of the global carbon budget. It concludes that between 2030 and 2040 the average annual emissions reduction would have to be three times the average emission reductions achieved between 2010 and 2030. On an emissions pathway that assumes a 25% chance of exceeding 2°C by the end of the century, a 2030 emission

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framing of its 2030 decarbonisation target' (13 December 2013). This is based on an assumption that developing countries peak their emissions by 2025 and reduce them rapidly thereafter to ensure a 'reasonable probability' of not exceeding the 2°C objective. See also K Anderson & A Bows, 'Beyond Dangerous Climate Change: Emission Scenarios for a New World' (2011) 369(1934) *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 20.

[54] D Morris, *The Sovereign Emission Rights Framework: An international emissions trading scheme without the hot air* (Sandbag, 2013).

[55] Ibid, p. 12. This is based on a 66% chance of avoiding 2°C. This compares with 12% India, 30% China, 85% Russia, 126% Saudi Arabia, 140% US, 160% Australia.

[56] Ibid, p. 13.

[57] See note 51 above.

reduction target of 40% would mean that the EU would use its entire 21st century emission budget by 2030. As with the Sandbag report, the premises that underpin the Ecofys analysis are very favourable to the EU as Ecofys ignores differences in historic emissions and takes population as the sole basis for carving up the global carbon budget between states.

It is clear in the light of this that a decision by the EU to exercise second-order climate responsibilities should not be taken as evidence that the EU is doing its fair share to mitigate the threat of dangerous climate change in any absolute sense. Nevertheless, the EU can credibly claim to be closer to doing its 'fair share' to tackle the mitigation challenge than most other states.[58] Thus, a decision by the EU to exercise second-order climate responsibilities should be viewed as reflecting a judgment about the relative adequacy of the EU's contribution to the global mitigation effort, as compared to the effort made by other states.

Still though the difficulty remains that there is no international agreement regarding which criteria should be used to assess the relative adequacy of a state's mitigation effort. There is therefore a danger that the EU may conduct this evaluation on the basis of criteria that serve to downplay its own share of the global mitigation effort and to exaggerate the effort that is required of other states. It is therefore necessary to introduce safeguards to guard against this danger of abuse. Two such safeguards are elaborated below.

In exercising second-order climate responsibilities, it should be incumbent on the EU to explain the basis upon which it has decided in which sectors to act. In so doing, the EU can refer to all relevant considerations, including the global importance of its

[58] The process of submitting intended nationally determined contributions (INDCs) to the UNFCCC before the Paris climate summit has just started. The substance of the different submissions can be found here: http://cait2.wri.org/indc/. We will rely upon the World Resources Institute and others to compare the submissions given the differences between them in terms of the annual baseline used, the conditions/contingency written in to them, the inclusion or otherwise of land-use change and many other factors. INDCs are intended to include GHG targets, non-GHG targets and other actions.

domestic market for the product concerned, the overall volume of GHG emissions that are embodied in products (comprising goods and services) sold within its market and the proportion of these emissions that are generated in countries that may be deemed to have failed to fulfill their first-order climate responsibilities. This explanation would be intended to guard against the danger that the EU might choose to exercise second-order climate responsibilities in sectors in which EU industry suffers from competitive disadvantages rather than in sectors in which the EU enjoys significant market power. It would be open to the European Courts, and indeed the dispute settlement bodies of the WTO, to judicially review the explanations proffered by the EU. We see the European Courts performing a similar function when it assesses the legality of the EU's choice of sectors for inclusion in the ETS.[59] In this context, the CJEU has accepted that different sectors can be treated differently so long as this differential treatment is based on an objective and reasonable criterion.[60] The Court has accepted that the implementation of the ETS can proceed on a step-by-step basis, subject to a requirement that the EU legislature should review the sectoral coverage of the ETS at regular intervals.[61]

Second, and most importantly, when the EU exercises second-order as opposed to first-order climate responsibilities in relation to extraterritorial GHG emissions it should be required to take the principle of common but differentiated responsibilities and respective capabilities (CBDR) into account.[62] Indeed, this may be considered to be the most important consequence flowing from the distinction between first-order and second-order climate responsibilities. This is because when the EU exercises second-order climate responsibilities, it is entering a jurisdictional space that ought, from the perspective of the IPCC system boundary guidelines, to be occupied by a

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[59] *Société Arcelor Atlantique et Lorraine and Others* v *Premier Ministre, Ministre de l'Écologie et du Développement durable and Ministre de l'Économie, des Finances et de l'Industrie* C- 127/07, EU: C: 2008:9895,which concerned the choice of sectors for inclusion in the ETS and the question of whether the EU had discriminated unlawfully by including certain sectors but not others.

[60] Ibid, para. 58.

[61] Ibid, para. 62.

[62] UNFCCC, Article 3.

different state. The adequacy of the mitigation effort that has been made by that state, and the answer to the question of whether that state has fulfilled its first-order climate responsibilities, will depend upon how that state is situated when viewed from the perspective of the UNFCCC-endorsed principle of CBDR.

This principle establishes a common responsibility among states to protect the climate system but sanctions differences among states in their efforts to address climate change. The principle establishes two benchmarks for appraising the relative effort to be made by different states, namely their current and historic contribution to the stock of global GHG in the atmosphere and their relative economic capabilities.

The meaning and implications of the CBDR principle are deeply contested and the inability of states to reach agreement about how this principle should be interpreted and applied is one of the main impediments to achieving progress in multilateral climate negotiations. The task of operationalizing the CBDR principle in the context of unilateral action on climate change raises a host of complex issues, only some of which will be considered here. What is beyond doubt is that when states exercise second-order climate responsibilities, they will enjoy a considerable degree of interpretive autonomy in giving effect to CBDR. While states must exercise this autonomy in a manner which gives full expression to the principle's two core elements - responsibility and capability – they enjoy considerable discretion in determining how these elements should be understood.

We can appreciate the open-ended nature of the principle of CBDR by looking at an 'off-the-peg' web-based climate equity calculator.[63] This recognizes the contested nature of the CBDR principle in that it allows the user to input a range of different parameters, depending upon which premises they wish to underpin their climate equity calculation. For example, users are required to select a mitigation pathway, to determine the relative weight to be accorded to responsibility and capability ('capacity' in the language of the calculator), to identify the date from which historic

[63] This Climate Equity Reference Calculator has been devised by EcoEquity and the Stockholm Environment Institute. It can be found here: http://www.gdrights.org/calculator/.

responsibility is to be assessed, and to define how progressive the calculator should be by including a development or poverty threshold.

By contrast to the Kyoto Protocol, this Climate Equity Calculator calculates each country's share of a global 'Responsibility Capacity' index and determines in the light of this what that country's mitigation requirement should be relative to a projected baseline. It does not completely exempt developing countries (non-Annex I countries) from assuming mitigation requirements, it simply adjusts these in accordance with a 'Responsibility Capacity' index. Even low-income countries incur mitigation burdens, albeit these are very substantially reduced. This climate equity calculator is therefore in keeping with the EU's preferred version of the CBDR principle. While the EU recognizes the continuing relevance of this principle, it favours an 'evolutionary' interpretation that reflects the evolving differences between states but which does not lead in the direction of the kind of rigid all or nothing distinction between developed and developing countries that was favoured by the Kyoto Protocol.[64] A more nuanced approach of this kind is also captured by the language that is starting to emerge in multilateral climate negotiations which 'underscores' the commitment of the parties to the UNFCCC to reach 'an ambitious agreement in 2015 that reflects the principle of common but differentiated responsibilities and respective capabilities, *in light of different national circumstances*'.[65]

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[64] Connie Hedegaard, the then EU Climate Change Commissioner, used this term in discussing the principle during a meeting that I participated in at the Centre for Policy Research in Delhi on 12 Sept. 2014. See also Ad Hoc Working Group on Long-term Cooperative Action (AWG-LCA), 'Views on the Elaboration of Market-Based Mechanisms', Submissions by Hungary and the European Commission on behalf of the EU and its Member States, in FCCC/AWGLCA/2011/MISC.2 (21 Mar. 2011), at 48, 55, stresses that higher capability developing countries would be expected to set more ambitious sectoral baselines, and that this would be in accordance with the principle of CBDRRC.

[65] Lima Call to Climate Action, recital 3, note 48 above. By paying attention to different national circumstances, the crude Annex I vs. non-Annex I binary is overcome. For a careful reading see Rajamani, note 49 above.

In implementing the CBDR principle, the EU will have to decide at which stage or stages of its decision-making processes the CBDR principle should be considered to bite. Given that the extent of a state's first-order climate responsibilities will necessarily depend upon its relative responsibility and capability, it seems clear that the CBDR principle must be taken into account by the EU when it assesses whether a state has fulfilled its first-order climate responsibilities. In deciding *whether* to exercise second-order climate responsibilities, the EU will be obliged to take CBDR into account.

What is less clear is whether the EU should also take this principle into account when it comes to determining the scale or intensity of the regulatory burden to be imposed on products that originate in countries that are deemed to have failed to fulfill their first-order climate responsibilities; that is to say whether the EU should be obliged to take CBDR into account in the manner in which it exercises second-order climate responsibilities. For example, if two countries are deemed to have failed to fulfill their first-order climate responsibilities, but the extent of their first-order responsibilities varies in light of the principle of CBDR, would it be appropriate for the EU to impose different climate change obligations on products that originate in the two countries concerned? Taking the example of the Aviation Directive, this would imply that flights departing from low responsibility-capability countries, would incur an attenuated obligation to surrender emissions allowances within the ETS. For example, flights departing from India for the UK would be required to surrender fewer emission allowances per tonne of carbon dioxide than flights that originate in the United States. Likewise, steel originating in a low responsibility-capability country would incur less stringent climate mitigation obligations than steel originating in a higher responsibility-capability country and than steel originating within the EU. As this focus upon differentiation suggests, application of the principle of CBDR will inevitably give rise to some difficult issues. Two such issues are here.

First, application of the CBDR principle will necessarily result in the differential treatment of products that originate in different countries. Products originating in countries that have fulfilled their first-order climate responsibility will be excluded from the scope of EU policy whereas products from non-compliant countries will not. Similarly, products that originate in a low responsibility-capability country may incur attenuated obligations under EU law by comparison with products that originate in a

high responsibility-capability state. There is a danger that differentiation of this kind may encourage producers to shift the location of production in order to reap the regulatory benefits that this may entail. This may give rise to (strong) carbon leakage and it conceivable that the volume of global GHG emissions may consequently increase.[66]

The prospect of carbon leakage presents a dilemma for the EU. On the one hand, differentiation is inherent in the very concept of CBDR as this principle is intended to result in the imposition of lower mitigation burdens on low responsibility-capability states. On the other hand, where there is no absolute, global, GHG emissions ceiling, and where shifts in the place of production can entail an overall increase in global GHG emissions rather than a simple redistribution of the locus of GHG emissions, carbon leakage can threaten to negate the benefits of the mitigation efforts that are made by particular regions or states. Finding a way to guard against carbon leakage, whilst remaining faithful to the principle of CBDR is not an easy task.

One possible solution has been proposed for consideration within the maritime transport sector.[67] This proposal seeks to combine equal treatment with the principle of CBDR. According to this proposal, all ships should be treated equally within the framework of a global ETS, thereby incurring equal obligations regardless of nationality. However, for ships that hold the nationality of a low responsibility-capability state, the monies that they pay as a result of participation in the ETS should be available for rebate to their flag state. This is indicative of one possible approach that the EU could consider in a bid to reconcile climate equity and climate effectiveness in energy-intensive sectors of the economy where there is compelling evidence that a significant risk of carbon leakage exists.

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[66] P Gilbert, M Roder & P Thornley, 'Can the UK afford (not) to produce chemicals in 2050?' (Tyndall Manchester, June 2013). The authors distinguish between strong and weak carbon leakage and define strong carbon leakage as occurring '[w]here an industry relocates to a region where there is specifically less, or an absence of, regulation and policies to address greenhouse gas emissions' (p. 6).

[67] A. Stochniol, 'Rebate Mechanism for International Transport (RM)' at: http://www.un-ngls.org/IMG/pdf/IMERS_Rebate_Mechanism_proposal.pdf.

The second issue arising as a result of the imposition of differentiated obligations on products originating in different countries concerns the compatibility of such differentiation with WTO law. It may be suggested that this gives rise to Most-Favoured-Nation discrimination because products imported into the EU from country X would be treated differently from products imported from country Y.[68]

The WTO Appellate Body (AB) has in the past adopted an understanding of the non-discrimination principle which leaves room for differential treatment in certain circumstances, without even having to rely on one of the explicit exceptions to the non-discrimination principle that the WTO Agreement lays down. This is mot apparent in the AB's *EC – Tariff Preferences* (GSP) report.[69] Here, the AB confronted a choice between what it characterized as a 'neutral' understanding of discrimination and a 'negative' understanding of discrimination. Whereas a neutral understanding regards the making of a distinction as sufficient to ground a finding of discrimination, a negative understanding carries 'the connotation of a distinction that is unjust or prejudicial'.[70] The AB favoured a 'negative' understanding in the circumstances of this case, thereby leaving room for positive action in favour of developing countries.

The implication of the AB's preference for a negative understanding of discrimination led it to accept that the EU was, as a matter of principle, entitled to treat different developing countries differently without this necessarily amounting to unlawful discrimination contrary to the most-favoured-nation principle. More precisely, the AB

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[68] This analysis assumes that the EU would not impose harsher burdens on any imported products than it imposes on like EU products and that therefore national treatment discrimination under GATT, Article III or TBT, Article 2.1 would not occur.

[69] *EC – Conditions for the Granting of Tariff Preferences to Developing Countries* (DS246/AB/R). See also *United States – Import Prohibition of Shrimp and Certain Shrimp Products* (DS58/AB/R) where the AB observed at para. 165 that '[w]e believe that discrimination results not only when countries in which the same conditions prevail are differently treated, but also when the application of the measure at issue does not allow for any inquiry into the appropriateness of the regulatory program for the conditions prevailing in those exporting countries.'

[70] Ibid DS246, para. 152.

accepted that it would not necessarily amount to discrimination for the EU to grant additional tariff preferences to certain developing countries and to deny these preferences to other developing countries; so long as the EU was responding positively to the different development, financial and trade needs of the different developing countries concerned.

On the contrary, the EU was only required to ensure that similarly-situated developing countries received identical treatment.[71] As such, the EU was required to make an objective assessment of the development, financial and trade needs of the different countries and to do so by reference to an objective standard. 'Broad-based recognition of a particular need, set out in the WTO Agreement or in multilateral instruments adopted by international organizations, could serve as such a standard'.[72] As the EU had not identified criteria or standards to provide a basis for distinguishing between different developing countries, the AB concluded that there was no basis to determine whether the EU's measure was substantively discriminatory or not. As the burden of proof rested upon the EU in the particular circumstances of this case, the EU was deemed to have failed to prove that its measure satisfied the non-discrimination test.[73]

While the EU was found to have acted in breach of WTO law in the GSP case, the reasoning of the AB is encouraging from a climate change differentiation point of view. It suggests strongly that differently situated countries (and the products coming from them) can be treated differently without this amounting to discrimination so long as a number of conditions are met. Perhaps the most important of these conditions is the requirement that differentiation be based upon an objective standard, and that multilateral instruments are capable of providing a standard of this kind. While the principle of CBDR is open-ended and contested in its contours and implications, the UNFCCC is unequivocal in endorsing responsibility and capability as the applicable standards to be applied in assessing the relative contribution to be made by states. Thus, so long as the EU has clear criteria for assessing the relative responsibilities and capabilities of states, and so long as it applies these criteria in a manner which is consistent and transparent, there is every reason to believe that differentiation

[71] Ibid, para. 173.

[72] Ibid, para. 163.

[73] Ibid, para. 183.

between countries which are not similarly situated would not be regarded by the WTO Appellate Body as giving rise to discrimination in WTO law.

VII. WHAT ARE THE ADVANTAGES OF A RESPONSIBILITY-BASED FRAME?

This article has proposed a new framework to evaluate and delimit the geographical boundaries of EU climate change law. A number of advantages associated with this framework are spelt out here.

First, the proposed framework recognises the importance of the IPCC's 2006 system boundary guidelines and the normative salience of regulatory initiatives that may be though to depart from these or from other established norms of international law. Although these guidelines are flawed and incomplete for the reasons discussed above, they have been endorsed by nearly two hundred parties to the UNFCCC. As such, when states depart from these guidelines, they are seeking to alter the internationally agreed system boundary and they are engaging in what amounts potentially to a norm-transforming act. As scholars writing in the constructivist tradition have emphasized, when agents seek to challenge or to promote the transformation of existing norms, they will almost always confront a difficult task. 'To challenge existing logics of appropriateness, activists may need to be explicitly "inappropriate"',[74] and consequently to work hard to persuade other agents, including powerful states, of the appropriateness of the putative normative change. Although it may seem tempting to deny that particular behavior presents a challenge to existing normative frameworks, this act of denial will deprive the actor in question of the opportunity to explain or justify why it considers it to be appropriate to promote an adjustment of existing norms or a new interpretation of them. The actor will forego the opportunity to persuade.

We saw this in relation to the EU's Aviation Directive where arguments from appropriateness and arguments from consequences clashed, generating considerable noise but mutual incomprehension rather than a meeting of minds. It was striking in relation to this that even states that did not stand to lose in material terms as a result of

[74] M. Finnemore & K. Sikkink, 'International Norm Dynamics and Political Change' (1998) 52 *International Organization* 887, p. 897.

the implementation of this measure nonetheless continued to speak out against the EU, emphasizing the inappropriateness of the 'extraterritorial' climate system boundary that the EU had put in place.[75]

Second, a responsibility-based frame, and the associated distinction between first-order and second-order climate responsibilities, helps to clarify the relevance and role of the principle of CBDR. This paper has argued that the EU should respect the principle of CBDR in deciding when and how to exercise second-order climate responsibilities. Respect for this principle can serve to mitigate the danger that the second-order responsibilities may be exercised in a manner that serves to impose excessively burdensome first-order climate responsibilities on other states. This is because the principle of CBDR requires the EU to recognize that countries' first-order climate responsibilities vary depending upon their relative contribution to the stock of GHG emissions and their relative economic capabilities.

Acceptance of the principle of CBDR may also be expected to enhance the EU's capacity to persuade other agents as to the appropriateness of it departing from the IPCC system boundary guidelines and from a strict reading of the territorial principle in customary international law.[76] Empirical studies of norm transformation have demonstrated that the influence of new norms is shaped in part by their relationship with existing norms.[77] Because of this, '[a]ctivists work hard to frame their issues in ways that make persuasive connections between existing norms and emergent norms'.[78] The CBDR principle lies at the heart of the international compact on climate change and although its meaning is contested and necessarily evolving,

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[75] This was true even of some of the Small Island Developing States whose very existence is imperiled by climate change.

[76] A strict reading of this principle might be thought to imply that even where a measure rests upon a territorial connection (eg market access) but pertains to behavior that takes place abroad, it should be viewed as extraterritorial. This stands in contrast to the CJEU's less strict reading in the *Air Transport Association* case (see the text at note 86 below). See Scott note 23 above for a fuller discussion of this pint.

[77] Finnemore & Sikkink, p. 908 (note 74 above) refer to this as 'adjacency claims'.

[78] Ibid.

abandonment of the principle in the context of unilateral climate action would simply not be countenanced by a large majority of the world's states.

India in particular has argued that unilateral climate change measures are 'unlikely to accurately reflect the principled balance of obligations in the climate regime' and that the EU's Aviation Directive 'stands in violation of the UNFCCC as it does not respect the principle of CBDR'.[79] While, initially at least, the EU sought to deny the relevance of CBDR in the context of its Aviation Directive, it later softened the no-CBDR pill by pointing out that more than three-quarters of the aviation emissions covered by the ETS were generated by EU or U.S. airlines, and that 98 developing country carriers were excluded from the ETS because they did not operate flights to or from the EU.[80] However, these consequentialist arguments did little to assuage the normative concern that was raised by the EU's suggestion that the principle of CBDR should not be viewed as relevant in the context of unilateral action where this regulates the behaviour of economic actors as opposed to the behaviour of states.[81]

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[79] Proposals by India for inclusion of additional agenda items in the provisional agenda of the seventeenth session of the Conference of the Parties, FCCC/CP/2011/INF.2/Add.1 (7 Oct. 2011), at 6. The China Air Transport Association, among others, also condemned the EU measure as contrary to CBDR.

[80] A. Runge-Metzger, 'Aviation and Emissions Trading: ICAO Council Briefing' (29 Sept. 2011), pp. 24 & 41.

[81] In 2013, the Commission tabled a proposed amendment to the Aviation Directive. Had it been adopted, it would have resulted in the inclusion within the ETS of GHG emissions generated within EU airspace. For this first time, the Commission accepted that CBDR is relevant in this setting and proposed to exempt GHG emissions from developing countries whose share of total revenue ton kilometres of international civil aviation activities is less than 1%. Developing countries would include countries not classified by the World Bank as high-income or upper-middle income. India would still have been included because its share of international civil aviation activities is more than 1%. See COM(2013) 722 final, 'Establishing a scheme for greenhouse gas emission allowance trading within the Community, in view of the implementation by 2020 of an international agreement applying a single global market-based measure to international aviation emissions'.

Third, a responsibility-based frame helps us to draw principled distinctions between different measures that encompass extraterritorial GHG emissions within their scope. It allows us to classify these measures according to their relationship with the IPCC system boundary guidelines and to appreciate the very different premises that underpin climate change 'extraterritoriality' depending upon the nature of this relationship. Whereas some such measures are in conformity with the IPCC system boundary guidelines or serve to fill a system boundary gap, other measures seek to unsettle the internationally agreed system boundary by asserting responsibility over GHG emissions that these guidelines would attribute to other states. It seems reasonable to assert that countries should bear a more onerous burden of justification when they adopt measures that depart from the IPCC system boundary in this way.

In keeping with this, it becomes possible to locate individual measures on a spectrum of climate change 'extraterritoriality',[82] depending upon their relationship to the IPCC system boundary guidelines. As we move along the spectrum from measures in conformity with the IPCC system boundary on the one hand, to measures that involve the exercise of second-order climate responsibilities on the other, the intensity of the norm transformation pursued by the relevant measure would seem to increase.

This is illuminating as far as the EU's Aviation Directive is concerned. As was previously noted, there is a system boundary gap in relation to international aviation and international shipping. In principle, it should therefore be relatively uncontroversial for the EU to take steps to fill this system boundary gap. Had the EU filled this system boundary gap in a manner that satisfied the replication test that was set out above,[83] the resulting measure would have been located towards the 'modest' norm transformation end of the spectrum of climate change 'extraterritoriality'. However, by endorsing a two-way system boundary, including both departing and

[82] I have put this term in inverted commas to reflect the fact that import restrictions that target extraterritorial GHG emissions are not really extraterritorial as such because their application is triggered by the existence of a territorial connection with the importing state, namely access to that state's market.

[83] Recall note 38 above. That is to say that the system boundary selected would not result in double-counting of GHG emissions if it were replicated by all other states or internationally.

(provisionally) arriving flights, the Aviation Directive also came to involve the exercise of second-order climate responsibilities. As such, its position on the spectrum of climate change 'extraterritoriality' changed, with the measure seeking to provoke a more profound degree of normative change.

Fourth, the responsibility framework developed and applied in this article offers important insights for judicial and quasi-judicial bodies that are called upon to assess the lawfulness of unilateral measures that include extraterritorial GHG emissions within their scope.[84] It would assist these bodies to situate individual measures on the spectrum of climate change 'extraterritoriality' as was explained above, allowing them to impose a more robust burden of justification in relation to measures that involve the exercise of second-order climate responsibilities and to develop appropriate conditions and constraints in relation to these measures to guard against abuse.

For example, it would fall to courts to apply the reasonable system boundary (or replication) test in relation to measures which seek to fill an international system boundary gap.[85] It would likewise be for courts to ensure that measures which involve the exercise of second-order climate responsibilities respect the principle of CBDR, and to verify that appropriate criteria for assessing whether states have fulfilled their first-order responsibilities have been identified and consistently applied.

As such, the responsibility framework is suggestive of a role for courts that is more searching than that assumed by the CJEU when it assessed the legality of the EU's

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[84] See also E. Morgera, 'The EU and Environmental Multilateralism: The Case of Access and Benefit-Sharing and the Need for a Good-Faith Test' (2013/14) *Cambridge Yearbook of European Legal Studies* 109, who identifies elements of a 'good-faith' test to assess the legitimacy of EU efforts to use unilateral measures to implement and promote the adoption of multilateral environmental norms.

[85] I use the term 'courts' loosely to include not only domestic and international courts but also other kinds of tribunals and dispute settlement bodies; including crucially WTO panels and the WTO Appellate Body.

Aviation Directive.[86] Here, the CJEU was faced with the novel question of whether the Aviation Directive, which included extraterritorial GHG emissions within its scope, was compatible with the territorial principle of jurisdiction in customary international law.

In providing an affirmative answer to this question, the CJEU emphasized three points. First, it stressed the existence of a territorial nexus between the EU and its object of regulation, namely EU-departing and EU-arriving flights. It emphasized that when an aircraft is within the territory of an EU Member State, it is subject to the 'unlimited jurisdiction of that Member State'.[87] Second, and in the same vein, the CJEU insisted that it acceptable for the EU to make the conduct of a commercial activity within its territory conditional upon compliance with criteria established by EU law, where these criteria are intended to fulfill the environmental protection objectives that the EU has set for itself.[88] Third, the CJEU insisted that the full application of EU law within its territory is not called into question by 'the fact that…certain matters contributing to pollution [in the EU] originate in an event which occurs partly outside.[89]

As such, the CJEU emphasized territory, EU regulatory autonomy and the existence of cross-border environmental effects. It did not spell out the relationship between these three considerations or specify which of these is a necessary or sufficient condition for legality. More particularly, the Court's reasoning created ambiguity about whether the capacity of extraterritorial conduct to generate EU-felt effects is a precondition for the inclusion of foreign conduct within the scope of EU law.

The CJEU's judgment does not distinguish between EU-departing and EU-arriving flights. It does not assess whether the EU's two-way system boundary is reasonable or

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[86] See *Air Transportation Association of America & Others* v. *Secretary of State for Energy and Climate Change*, C-366/10, EU: C.2011: 3755.

[87] Ibid, para. 124.

[88] Ibid, para. 128. The CJEU stated that this is 'in particular' the case where the EU's environmental objectives 'follow on from an international agreement to which the European Union is a signatory'.

[89] Ibid, para. 129.

susceptible to replication at the international level. And it does not acknowledge the possible exemption of EU-arriving flights. It does not demonstrate any awareness of the existence of the principle of CBDR. It does not reference the IPCC system boundary guidelines, consider the position of international aviation within these or reflect on how much authority, if any, these guidelines should enjoy. The Court's judgment is thinly reasoned and it hides behind the existence of a territorial nexus to downplay the novelty of the question that had been raised. The analysis provided in this paper is intended to assist the CJEU and other judicial and quasi-judicial bodies by providing a normative framework for delimiting the circumstances in which, and the conditions according to which, it should be considered lawful for the EU to include extraterritorial GHG emissions within the scope of its climate change laws.

VIII. CONCLUSION

This paper has brought together literature on climate change justice and the international legal framework for apportioning GHG emissions among states in order to develop a set of proposals to demarcate the geographical extent of the EU's first-order and second-order climate responsibilities. While the EU's decision to give broad geographical scope to its Aviation Directive was framed according to a logic of consequences, this paper has shown that, subject to complying with the safeguards that constrain the exercise of second-order climate responsibilities, this measure could have been justified on the basis of a logic of appropriateness as well.

The paper has argued that there are four situations in which it is appropriate for the EU to include extraterritorial GHG emissions within the scope of its climate change law. While three of these involve the exercise of first-order climate responsibilities, the fourth involves the exercise of second-order climate responsibilities. These four situations are summarized in the table below:

Table I: The EU's First- and Second-Order Climate Responsibilities for Extraterritorial GHG Emissions

First-Order or Second-Order Climate Responsibilities	*Justification*
First-Order	Departure from a territorial system boundary is endorsed by the IPCC system boundary guidelines
First-Order	Filling a system boundary gap (subject to satisfying the replication test)
First-Order	EU legislation conferring a significant market-place advantage on 'climate-friendly' products
Second-Order	To induce other states to comply with their first-order climate responsibilities (subject to the safeguards set out including respect for the principle of CBDR)

The paper has argued that the distinction between first-order and second-order climate responsibilities has important implications in relation to the regulation of extraterritorial GHG emissions, especially when it comes to determining the relevance of the principle of CBDR.

This paper has used the term 'responsibility' to connote moral rather than legal responsibility.[90] Therefore the argument put forward in this paper does not rest upon a

[90] For an excellent discussion of the question of legal responsibility (or liability) under both international and domestic tort law, see MG Faure & A Nollkaemper, 'International Liability as an Instrument to Prevent and Compensate for Climate Change' (2007) 26A *Stanford Journal of International Law* 123. In keeping with the preceding discussion, international law in the area of climate change provides only

claim that a state that has failed to discharge its first-order climate responsibilities has breached a legal obligation grounded in international law. Similarly, it is not premised upon the suggestion that states with second-order climate responsibilities incur a legally binding obligation to act. This, however, is not to say that this discussion of climate change responsibilities is irrelevant as a matter of law. The paper accepts that the existing international legal framework for apportioning GHG emissions among states, though not formally binding in relation to unilateral acts, should provide the starting point for an analysis of a state's moral responsibilities. Also, the nature and extent of a state's moral responsibilities should be viewed as of paramount importance in appraising the lawfulness of a state's decision to include extraterritorial GHG emissions within the scope of its climate change laws. In keeping with this, this paper has sought to provide guidance to judicial and quasi-judicial bodies within the EU and the WTO to assist them in delimiting the circumstances in which it should be considered lawful for states to extend the global reach of their climate change laws.

This paper has set out many arguments in favour of adopting a responsibility-based framework for assessing how, far geographically, the EU's climate change responsibilities extend. One of the key advantages of this approach is that it allows us

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very vague benchmarks for apportioning legal responsibility to states, at least for countries that have not accepted emission reduction commitments under the amended Kyoto Protocol. Recall notes 45-47 above. It would interesting to consider how the arguments put forward in this paper concerning second-order climate responsibilities would play out against the backdrop of a finding of legal responsibility as a matter of public international law, including in relation to the international law of state responsibility. But this would be the topic for another paper. From the perspective of state responsibility, one of the crucial things to recognize in relation to the discussion here is that if the EU were to use its *market* power as a way of exercising second-order climate responsibilities in response to a breach of an international legal obligation by another state, there would be a strong argument in favour of the proposition that the EU measures should be viewed as acts of retortion rather than acts of reprisal. This is *a fortiori* the case if the moral argument put forward in this paper is allowed to influence the interpretation of positive law, especially within the framework of the WTO.

to distinguish between different measures that include extraterritorial GHG emissions within their scope; and to situate these measures on a spectrum of climate change 'extraterritoriality'. This approach serves also to shine a bright light on the question of whether the EU, a self-proclaimed global climate leader, has in fact fulfilled its own first-order climate responsibilities, when judged in absolute as well as in relative terms.

While this paper has endorsed a 'logic of appropriateness' in seeking to identify the geographical limits of EU climate change law, there is much to be said in favour of the climate change consequences that would result as well. While this paper has attached importance to the climate change system boundary constructed by the IPCC and endorsed by parties to the UNFCCC, it has not done so in a way that would invariably preclude the EU from including extraterritorial GHG emissions within the scope of its climate change laws. The logic of appropriateness that is defended in this paper therefore favours action over inaction and creates space for action-forcing contingent unilateralism. At the same time, however, it seeks to introduce conditions and constraints to guard against the danger that powerful agents – such as the EU – may use their market power to offload some of their own climate change responsibilities onto other, often less affluent, states.