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Two Stories about EU Climate Change Law and Policy*

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Abstract

The European Union (EU) has styled itself a global leader in climate action. In having done so, it presents itself as responding to science and public concern and its historic responsibilities. In terms of its means of response, the EU's Emissions Trading System (ETS) has been the primary instrument. A rational response to liberal economic theory, the EU ETS is often trumpeted as a cost-effective success story internally, and as a model to be adopted externally. This optimistic narrative is challenged herein.

A. Introduction

Viewing climate change through the lens of 'international cooperation' may, to international lawyers, be a rather loaded concept, or at least one that betrays a particular approach to the discipline. One method of public international law focuses on disputes, their settlement and pertinent rules, sources and principles. According to Benedict Kingsbury, this entails the tilting of –[1]

> … the subject towards specific questions of whether one state has become bound by a particular rule which the other state may invoke, and away from what might otherwise have been an overwhelming preoccupation with the construction of a global normative order.

An approach that permits of a broader range of systemic objectives, building on legal realism,[2] has developed in the United States (US), with a greater focus on international institutions and their managerial and problem-solving

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1 Kingsbury (2005:272).

2 See Duxbury (1997:191–200).

properties. Best known in its incarnation as the New Haven 'policy science' approach, this has not been broadly accepted outside the US, and the "dominant jurisprudential approach to the global practice of international law continues to be positivist".[3]

By focusing on international cooperation in the climate-action realm, and deploying interdisciplinary materials and techniques, this article tends towards the latter approach. Instead of focusing on states *stricto sensu*, the scrutiny here is trained on a regional integration economic organisation, the European Union (EU); rather than analyse treaties and general principles, here, market-based mechanisms and their use in that polity are examined; and instead of exclusively deploying familiar techniques of legal analysis, a key role is reserved for liberal economics. Can transnational mimesis be identified in the narrative of emissions trading?[4] The purpose of this article is not to sunder the positivist approach, but rather to seek the integration, with traditional positivism, of what are argued herein to be relevant interdisciplinary materials and their problem-solving capacities. Bluntly put, can market-based instruments facilitate international cooperation on climate mitigation, and what light does the EU's Emissions Trading System (ETS) cast on that question?

The discussion considers the EU's climate change law and policy; its approaches, successes and failures; and the emergent dynamics. In so doing, two competing narratives or ways of understanding the EU's legal response to anthropogenic climate change are apparent. The first of these, which has something of the 'official history' about it, characterises the EU as the leading global actor in the fight against climate change. Building on its energetic role in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations – their initial phases, the 'Kyoto moment', its implementation, and beyond – the EU has adopted a series of mitigation measures which commit it to reducing its greenhouse gas (GHG) emissions by 80% by 2050.[5]

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3 Kingsbury (2005:272).

4 For one prominent, albeit rather limited, argument to this effect, see Wiener (2001:27).

5 European Commission (2009:10) states that "[t]he adoption of the climate and energy package makes the European Union the first region of the world to have both committed to such ambitious targets and put in place the measures needed to achieve them"; and Jordan et al. (2010:76) refer to the EU's Climate and Energy Package as "a momentous development".

These steps, consistent with the science of climate change and the principle of common but differentiated responsibilities, have the EU ETS at their core. Launched in 2005, the EU ETS is a conceptually straightforward cap-and-trade system that has borrowed from the toolkit of American experiments with "economic-incentive instruments",[6] and built a €140,000,000,000 regime which sits at the heart of the global carbon market and leads it. This, so the story goes, is a rational response to liberal market theory, and is free of the flaws of discredited 'command and control' approaches to pollution control. Buttressed by its wide-ranging Climate and Energy Package (CEP), and having created a polity-wide carbon price, the EU ETS will drive the low-carbon reconstruction of the European economy. In many respects a classic environmental externality,[7] by seeking a solution in markets and, hence, private resources, the public or state realm is not implicated.

The alternative history is both less optimistic and more complex. Rather than a Damascene conversion to the merits of marketisation, as preached by the Kyoto Protocol,[8] this narrative considers that the shift in instrument choice owes much to political compromise at the Third Conference of the Parties to the UNFCCC at Kyoto in 1997, and a broader phenomenon internal to the EU, captured by the 'new governance'. As elaborated below, this turn to market-based regulatory solutions has wrought a decisive shift in the EU's governance techniques.

Moreover, rather than the EU ETS being seen as a resounding success, it has been plagued by problems of over-allocation, lobbying, fraud and windfall payments. Instead of the market seamlessly providing private solutions

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6 Stavins (1998:6) discusses the following applications of economic-incentive instruments in the US: the US Environmental Protection Agency's Emissions Trading Program, the leaded gasoline phasedown, water quality permit trading, the phasing out of chlorofluorocarbons (CFCs), the sulphur dioxide allowance scheme for acid rain control, and the Regional Clean Air Incentives Market (RECLAIM) in the Los Angeles metropolitan area.

7 Stern (2007:27). In common with many other environmental problems, human-induced climate change is at its most basic level an externality. Those who produce GHG emissions are bringing about climate change, thereby imposing costs on the world and on future generations, but they do not directly – whether via markets or other ways – face the full consequences of the costs of their actions.

8 Kyoto Protocol to the UNFCCC, (11 December 1997) 2303 UNTS 162; available at http://unfccc.int/resource/docs/convkp/kpeng.pdf, last accessed 1 February 2013 (hereinafter *Kyoto Protocol*).

to societal problems, we see the necessity for repeated state intervention. Claims as to the effectiveness and efficiency of market-based mechanisms look somewhat different in this light. And can a carbon price of €7 per ton (the 2012 average) really drive the low-carbon investment necessary for the complete retooling of the European economy that is necessary to meet its self-imposed target of 80% emissions reductions by 2050? The answer is self-evident; and, rather than rely on invisible green hands, European policymakers have recently resorted to a further round of climate change measures, to further political tightening of the emissions cap, and to unilateral measures aimed at cajoling those who have failed to follow the European lead.

In unpacking these issues, the article starts, in Part B, with the theoretical basis for the EU ETS and the necessary excursus into microeconomic theory and the seminal work of Ronald Coase. Although this body of work will be familiar to many, it remains the case that it is misunderstood and misrepresented by environmental law scholars. By taking Coase seriously, as it were, we will be in a better position to discuss the merits of market-based approaches to environmental problems and to assess those who should urge policymakers to draw on them. Part C establishes the environmental/constitutional structures of the EU that form the basis of the analysis. Hand in hand with the gradual development of environmental constitutionalism within this polity, the adoption of techniques of 'governance' become apparent – which themselves are in dialogue with the economic turn mapped out above. As far as the EU's legal response to climate change is concerned, Part D points out the heart of the matter: the transition of the EU towards market-based solutions to environmental problems, their application to climate change, the creation of the EU ETS, and the subsequent, comprehensive package of measures adopted by the EU. Thus, the CEP has sought to address the climate change problem seriously within the EU and also to pester, entice and persuade the rest of the world to do the same. The CEP's mixed success, both internally and externally, has led to what is later herein termed the EU's *Second Climate Change Package*. The effusive rhetoric of marketisation has not been matched by real-life performance. This might have been anticipated not only by reference to the history of such schemes, but also if careful attention had been paid to Coase. The conclusion attempts to frame these arguments in the context of international cooperation on climate change – a task that continues to elude the grasp of policymakers.

B. Market Concepts, Economic Instruments and their Legal Reception

> For better or for worse, and without regard to one's politics, the borrowing of market concepts has *transformed* legal reasoning and captured an authoritative position in the legal imagination.[9] [Emphasis in original]

The importance of emissions trading in mitigating climate change is only one of many proofs of this claim. Most enduringly and enthusiastically deployed in antitrust[10] and private law[11] contexts in American legal scholarship, the use of economic concepts and instruments in legal analysis has extended geographically,[12] intellectually,[13] and into non-private law disciplines.[14] Most importantly for the present purposes, the borrowing of market concepts is well-embedded in practical policy- and lawmaking. Indeed, the EU's energetic and comprehensive response to climate change is substantially characterised by its use of economic instruments, foremost amongst which is the EU ETS. Nonetheless, the European use of economic instruments for environmental regulation is not wholly novel, either in theory or practice.

For nearly two decades, scholars of EU law have been debating the merits and operationalisation of economic instruments vis-à-vis other forms of regulation.[15] The present discussion examines the rationale of economic instruments as regulatory tools. No apology is made for rehearsing arguments that are familiar to specialists, as it is still the case that some detractors of market-based mechanisms continue to misrepresent the claims and arguments made for them. This is of particular significance to those who, like me, have reservations about market-based mechanisms, but the duty nonetheless remains to represent our opponents and their positions accurately.

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9 Malloy (2004:3).

10 Director (1957:606) delivers a short note that would become a *locus classicus* in the field of law and economics.

11 For exemplars of the 'old law-and-economics', see Kronman (1979); Poser (1973).

12 Mattei (1997).

13 The dogma associated with the first wave and law-and-economics (its insistence on certain behavioural assumptions and focus on wealth maximisation) generated a 'post-Chicago' law-and-economics movement, which purports to avoid these flaws and seeks a broader engagement with other social sciences; see e.g. Komesar (1997). For an overview of these debates, see Ogus (1998).

14 Cooter (2002).

15 Swanson (1995:287).

Externalities are the starting point for understanding the role of economic reasoning in environmental policy. Formally stated as a "cost or benefit arising from any activity which does not accrue to the person or organisation carrying out the activity",[16] an *externality* may be the uncompensated noise, dust or odour, etc. suffered by residents adjacent to a dirty industrial operator (a *negative externality*) or the pleasure one receives from viewing oe's neighbour's herbaceous border (a *positive externality*). In both cases, the *social* cost or benefit is greater than the *private* one. Consider the case of a coal-fired steel mill that emits great volumes of soot which then fall on a neighbouring laundry. Such negative externalities impose a cost on society (the laundry and its customers) that is not borne by the operator, who views this cost as external to – hence 'externalities' – its own profit calculations, resulting in too much steel being produced and too few clothes being laundered. As noted by Nicholas Stern, climate change-contributing activities can readily be seen in this light.[17] But how does one redress this imbalance, this problem of social costs?

Such discussions are necessarily framed by the famous interventions of Ronald Coase, which in turn challenged the Pigouvian solution to problematic externalities.[18] When faced with a market activity that generates negative externalities,[19] Arthur Cecil Pigou's response was to engage the state and require direct governmental intervention in the form of the imposition of a tax on each unit of pollution equal to the marginal social damages at the efficient level of pollution. In its absence, argued Pigou, the social cost of a market activity would not be covered by the private cost of the activity – an inefficient outcome that would likely lead to overproduction, as operators are incentivised to produce beyond the optimum level. By burdening the activity in question, the market would be brought back into balance.

Before turning to Coase's *The Problem of Social Cost*, we should pause to consider the attractions of Pigou's internalisation of externalities.[20] At the very least, it responds to a lawyerly instinct that wrongdoers should desist from and make reparations for their actions – a sort of 'the polluter pays' principle. Not unrelatedly, this approach has the virtue of simplicity. It seems

16 Black et al. (2009); see also Dahlman (1979:22); Trebilcock (1994:Ch. 3).
17 Stern (2007:27).
18 Pigou (1920).
19 Coase (1960:3): "[T]hose actions of business firms which have harmful effects on others …".
20 Pigou (1920).

obvious that the factory should compensate, even if only indirectly, those who bear costs arising from its activities. Similarly, if we tweak Pigou's taxing of wrongdoing and replace it with a delictual liability rule whereby those causing damage to the property of others are required to compensate them for their losses, this, too, would correspond to our intuitions regarding causation and responsibility.

Coase's response to Pigou's simple and intuitive solution[21] is cast in the form of a series of familiar examples and recourse to the English common law,[22] but at its very heart is the matter of transaction costs. Assuming zero transaction costs – "a very unrealistic assumption"[23] – Coase provocatively posits that social and private costs of a given activity would be equal, and that resources would be efficiently allocated between the interacting activities.[24] If the legal regime in place allows the burning of highly polluting coal and does not grant the laundry a right to clean air, the laundry owner is incentivised to pay the steel mill to reduce its output (or take other steps to reduce soot output). That source of potential revenue thus becomes an implicit cost to the steel mill if it declines to reduce production and, in this way, the private costs, explicit and implicit, are equal to the social cost of steelmaking. As summarised by Harold Demsetz, "we may conclude from Coase's analysis that if transaction cost is zero no special government action is needed. Negotiations between the interacting parties will result in an efficient mix of outputs."[25]

Pigou's solution of the "internalisation of externalities" will thus impose a cost on the parties that cannot "ensure optimal outcomes (even in principle) within the constraints imposed by transaction costs".[26] Rather than requiring the intervention of the state to determine legal entitlements, Coase argues that individuals will come to an agreement with an efficient result in the absence of transaction costs.

21 Duxbury (2005:961) is surely correct in that the "guiding impulse behind law and economics is counter-intuitiveness".
22 Coase (1960:Pts III–V, VII).
23 (ibid.:15).
24 Demsetz (1998:268).
25 (ibid.:269).
26 Kramer (1991:101).

It is at this point that objections may be raised that transaction costs are rarely, if ever, zero and that this fatally undermines the 'Coase Theorem'.[27] Coase anticipates this response:[28]

> In order to carry out a market transaction, it is necessary to discover who it is that one wishes to deal with, to inform people that one wishes to deal and on what terms, to conduct negotiations leading up to a bargain, to draw up a contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on. These operations are extremely costly, sufficiently costly at any rate to prevent many transactions that would be carried out in a world in which the pricing system worked without cost.

The implications of this recognition are significant for Coase's subsequent arguments about transaction costs (discussed below), but also for understanding the nature of markets themselves. Rather than assume that markets resolve competing demands for scarce resources by an automatic price system free from central planning – a core tenet of neoclassical economics, Coase recognises that markets do not operate without cost, and that they can be "extremely costly".[29] As such, markets cannot always be relied on to succeed without the aid of social planning, but rather only when "the increase in the value of production consequent upon the rearrangement is greater than the costs which would be involved in bringing it about."[30]

It should be clear, then, that to characterise the Coasian world as one in which transaction costs are unimportant suggests at the very least an unfamiliarity with his work. As he has pointed out, –[31]

> I examined [in *The Problem of Social Cost*] what would happen in a world in which transaction costs were assumed to be zero. My aim in so doing was not to describe what life would be like in such a world but …to *make clear the fundamental role which transaction costs do, and should, play in the fashioning of the economic system*. [Emphasis in original]

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27 In addition, some scholars have challenged the use of the term *theorem* in this context; see Cooter (1991:51), who highlights that no 'theorem' bearing his name was ever written by Coase; the term was in fact coined by George Stiglitz – and that there are "several conventional interpretations of the Coase Theorem"; see also De Meza (1998:270), who notes that "the word 'theorem' evokes a mathematical style which is alien to Coase's taste and may have done a disservice in diverting attention from his broader message".

28 Coase (1960:15).

29 (ibid.: 15).

30 (ibid.:15–16).

31 Coase (1990:13).

Given the clarity of both Coase's original article and subsequent restatements, it is remarkable how commonly the basic elements of the argument are misrepresented.[32] A particularly egregious example of this tendency comes from Chris Hilson[33] – editor of the *Journal of Environmental Law* from 2007 to 2012 and, as such, a particularly important interlocutor. He claims that "the Coase Theorem suggests that a Pigouvian tax is not necessary to achieve the economists' ideal of efficiency – all that is required is a bargained solution between polluter and polluted."[34]

No pinpoint reference to *The Problem of Social Cost* is given for this interpretation for the obvious reason that none exists. Moreover, it misstates one of the central impulses of the article – that while frictionless bargaining may result in optimal outcomes from an efficiency perspective, it is deeply improbable, given the ubiquity of transaction costs. Hilson goes on to claim in the attendant footnote that –[35]

> … it has long been pointed out that the theorem falls down where large numbers are involved and where bargaining cannot therefore take place without considerable transaction costs. Most modern pollution problems do of course involve large numbers, which means that the Coasian approach is of limited utility.

Again, Hilson's is a rather baffling assertion. In Coase's own words cited above, transaction costs will have the whip hand in determining which bargains are struck and which are not. Moreover, if such costs are present in the circumstances of simplistic scenarios of launderers and elementary arithmetic, they will certainly be present in the real world. Finally, Hilson's ignominy is complete when he claims that "Coase … is a true free marketeer, who believes that an efficient solution can be found without the need for government intervention of any kind."[36]

Again, there is no direct reference for this statement, it ignores the implications of Coase's treatment of transaction costs, and it appears oblivious of Coase's own recognition that governmental regulation may –[37]

> … lead to an improvement in economic efficiency. This would seem particularly likely when, as is normally the case with smoke nuisance, a large number of

32 See Kramer (1991), who cites numerous misreadings of the argument.
33 Hilson (2000).
34 (ibid.:7).
35 (ibid.:7, No. 29).
36 (ibid.).
37 Coase (1960:18).

> people are involved and in which therefore the costs of handling the problem through the market or the firm may be high.

One of the most important ways in which government intervention can improve efficiency is by assigning binding property rights where previously there were none – an intervention at the heart of both Coasian thought (as it is a prerequisite to the free exchange of entitlements and the operation of the market)[38] and its specific application to emissions trading (as without assigned property rights in the environment, there can be no trading). For a sense of how radical this step was, it should be recalled that water and air were traditional examples of free goods in economics.

Having cleared some of the undergrowth from the debate surrounding Coase, we can return to the fundamental problem of how to deal with externalities. Thomas H. Tietenberg summarises the pre-Coasian position as a series of stand-offs between policymakers and economists, the latter having regarded legal regimes (so-called command-and-control regimes) as not being cost-effective. With a switch to Pigouvian taxes, the economists argued, more pollution control could be gained with the same expenditure. In response to this, the policymakers not only doubted that the bureaucracy could design efficient taxes, owing to the information burden, but that taxes based on limited information might not be any better than legal regulation.[39] By thinking about the issue as one of property rights,[40] and arguing for such rights to be explicit and transferable, market actors can allocate the use of this property in a cost-effective way, that is, one that achieves the overall emissions objective at the lowest cost.

The application of this basic Coasian logic to the problem of pollution is now relatively straightforward and commonly associated with the proposals of T.D. Crocker[41] and J.H. Dales.[42] They elaborated schemes in which environmental resources such as air and water can be recognised as tradable property in the form of transferable discharge permits: a regulator determines

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38 (ibid.:44); see also Coase (1959:27), who states that "the delimitation of rights is an essential prelude to market transactions".

39 Tietenberg (2006:2).

40 (ibid.); see also Coase (1960:44): "If factors of production are thought of as rights, it becomes easier to understand that the right to do something which has a harmful effect... is also a factor of production.... The cost of exercising a right (of using a factor of production) is always the loss that is suffered elsewhere in consequence of the exercise of that right".

41 Crocker (1966:61).

42 Dales (1968).

the total quantity of allowed emissions (the *cap*) and distributes rights in line with the cap, and a well-functioning market allows for permit holders (individual sources of emissions) to trade their permits until a cost-effective allocation has been reached. The great virtue of such a scheme, according to Dales, is that "no person, or agency, has to *set* the price – it is set by the competition among buyers and sellers of rights."[43] [Emphasis in original]

The application of economic theory to the real life of public policy is a necessarily involved story. According to one version, the confluence of failed command-and-control regulations and political pressure in the late 1970s forced the US Environmental Protection Agency to consider "an early form of emissions trading".[44] This led to the adoption of a series of new economic instruments to address a variety of environmental problems, both domestic and international. The former of these schemes included lead trading, sulphur dioxide trading under the Clean Air Act Amendments (1990),[45] and the Regional Clean Air Incentives Market (RECLAIM) in the Los Angeles metropolitan area;[46] the latter included, albeit later, the Montreal and Kyoto Protocols.[47] In the same period, advocates of "liberal law and economics"[48] argued along similar lines in the legal academy. A good place to start is the argument of Bruce Ackerman and Richard Stewart.[49] Two liberal, early adopters of law and economics, they write in an American context, concerned with environmental regulation in its broadest aspect:[50]

> The present regulatory system wastes tens of billions of dollars every year, misdirects resources, stifles innovation, and spawns massive and often counterproductive litigation … Powerful organised interests have a vested stake in the status quo. The congressional committees, government bureaucracies, and industry and environmental groups that have helped to shape the present system

43 (ibid.:80). See also Tietenberg (2006:4): "[T]ransferability, at least in principle, allows the market to handle the task of ensuring that the assignment of control responsibility ultimately ends up being placed on those who can accomplish the previously stipulated reductions at the lowest cost".

44 Tietenberg (2006:6–7).

45 Clean Air Act Amendments of 1990, Pub. L. 101–549, 104 Stat. 2399, 1990–11–15.

46 See Stavins (2003:407).

47 Kyoto Protocol; Montreal Protocol on Substances that Deplete the Ozone Layer (16 September 1987), 1522 UNTS 3. For a synoptic analysis of these policy initiatives, see Hahn & Stavins (2011:267); Stavins (2003).

48 The term derives from the seminal article by Kennedy (1981:387), arguably still the leading critique of the law and economics movement and method.

49 Ackerman & Stewart (1985:1333).

50 (ibid.:1333–1334).

> want to see it perpetuated. But the current system is also bolstered by an often inarticulate sense that, however cumbersome, it 'works', and that complexity and limited information make major improvements infeasible.

In these four sentences, we see arguments that clearly resonate with the economic literature. The matter of "waste" or inefficiency is at the heart of the Coasian assault: the claim that whatever the other merits of Pigouvian taxes (intuitive appeal, simplicity, etc.) or governmentally imposed standards, they are not efficient and, as such, result in the misdeployment of resources, with the attendant consequences.[51] Such standards, whether straightforward command-and-control or 'best available technology' (BAT) techniques, are what Julia Black calls "prescriptive regulation".[52] Furthermore, Ackerman and Stewart's is a critique of BAT controls and the "lengthy regulatory and legal proceedings" that they entail, which delay and discourage new investment and stifle innovation.[53] As with setting the levels of Pigouvian taxes, the centralised determination of technical controls and standards –[54]

> … impose[s] massive information-gathering burdens on administrators and provide[s] a fertile ground for complex litigation in the form of massive adversary rulemaking proceedings and protracted judicial review.

These claims, it should be noted, are founded on an array of empirical studies. What is of interest for present purposes is the extent to which the rent-seeking, inefficiency, litigation and other suboptimal outcomes associated with prescriptive regulation by Ackerman and Stewart are unknown to European practices of emissions trading. Their claim is an example of the broader claims made of 'marketisation': that it can draw on well-known strengths of information processing, the opening up of enormous financial resources for effective and informed regulation, timely and effective enforcement, and powerful incentives for monitoring and enforcement.[55] In terms of the failings of the 'statist' approach, the promise is of avoiding cosy deals with incumbent industries, and wasteful litigation.

Having surveyed the intellectual foundations for emissions trading and briefly considered their application in the environmental context in the US, the discussion now moves to their use in the EU. It is argued that the EU's ready adoption of economic instruments in the climate change context has,

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51 (ibid.:1335).
52 Black (2001:103).
53 Ackerman & Stewart (1985:1336).
54 (ibid.:1337).
55 (ibid.:1343).

on occasion, been somewhat oversimplified. 'Legal borrowing' between regulatory spaces certainly has a place in the narrative, and Jonathan Wiener writes of "the remarkable fact that Europe has also borrowed the regulatory tool of emissions trading from the US in order to implement the Kyoto Protocol … The basic reason is not mystery: cost-effectiveness."[56]

As true as this argument may be, it is somewhat hamstrung by its narrowness. It mistakes the part for the whole, ignoring broader trends and dynamics in EU governance, which have played no less significant a role in the EU's climate change policies, both internal and external. In describing the European turn away from state planning in the second half of the 20th Century, historian Tony Judt frames the broader context as follows:[57]

> The state [as "neo-liberals" insisted] should be removed as far as possible from the market for goods and service … it should not allocate resources …. In the view of one leading exponent of free-market liberalism, the Austrian economist Friedrich Hayek, even the best-run states are unable to process data effectively and translate it into good policy: in the very act of eliciting economic information they distort it …. Economic liberalization did … illustrate a seismic shift in the allocation of resources and initiative from public to private sectors.

C. From Single Market to Environmental Constitutionalism

The shift from prescriptive regulation to incentive-based regulation has taken hold in Europe as in the US, albeit with some time lag. In tandem with this shift, there has also occurred in the EU a marked change in its recognition of environmental concerns. What follows highlights the repositioning of the environment from the periphery to the centre of EU policy debates and action. Although the history of environmental regulation is necessarily shallow in almost all polities, as discussed below, in the case of the EU this is especially so. That said, the EU has not allowed this fact to constrain its environmental regulatory efforts, especially not in the field of climate change: far from it. The EU immodestly proclaims itself to be the international leader in climate change legislation, but not without cause. The following sections briefly track the development of the EU's environmental competence and

56 Wiener (2006:447–457).
57 Judt (2010:537, 558).

activities from the foundational period to the present day.[58] The transition from passivity to near-frenzied action is striking.

I. The Treaty of Rome (1957) and First Environmental Steps

Whether one views the legal constructs of the EU as a capitalist conspiracy[59] or historic guarantor of peace in the Atlantic world, it should not be surprising that environmental concerns were not present at the birth. The Treaty of Rome[60] – the constitutive legal text of the EU – made no explicit reference to the environment, and it was not until the mid-1960s that environmental legislation was passed by the European legislator.[61] Given its firm foundations in the environmentally antithetical worlds of steel and coal market development, this slow start was inevitable. The elaboration and articulation of the 'four freedoms'[62] in the Treaty of Rome's Article 3 were the overwhelming priority of the then European Economic Community (EEC),[63] until the intervention of UN-sponsored environmental activism in the form of the Stockholm Conference in 1972.[64]

This kick-started "European" environmentalism (which had, of course, been steadily developing at the member state level) in typically hortatory

58 I draw here on the classification adopted in Holder & Lee (2007:Ch. 4); see also von Homeyer (2009:1).

59 Ward (2003:138–139) states the following: "The free market lay at the heart of the Treaty of Rome … [the] four 'freedoms' [of goods, persons, services and capital] are the heartbeat of the common market …. But perhaps the deepest problem lies at the very heart of the notion of a 'free market' …. For, whilst the 'common market' might be 'free' in the economic sense, it is certainly not free in the political or ethical sense".

60 Treaty Establishing the European Economic Community (25 March 1957), 298 UNTS 3 (hereinafter *Treaty of Rome*).

61 Chalmers (1999:653) cites Council Directive 67/548/EEC on the Approximation of Laws, Regulations and Administrative Provisions Relating to the Classification, Packaging and Labelling of Dangerous Substances, 1964 OJ (196) (EC).

62 The 'four freedoms' that underpin the European 'common market' are free movement of goods, workers, services and capital. The Treaty of Rome also provided common policies in agriculture, competition and transport, as well as in the field of social policy.

63 For an account of the 'ordo-liberalism' of the internal market, see Gerber (2001).

64 Declaration of the United Nations Conference on the Human Environment, 16 June 1972, available at http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=1503, last accessed 2 February 2013.

fashion, with the European Council of that year declaiming that "economic expansion is not an end in itself … the protection of the *human* environment is a major issue which affects the well-being of people and economic development throughout the world."[65] [Emphasis added]

There followed in 1973 the first of the Action Programmes for the Environment,[66] a four-year policy framework for European Community (EC) action relating to pollution control, biosphere protection, resource management, etc.[67] But if such considerations were not to be found within the foundational Treaty of Rome, upon which legal or constitutional authority could environmental protection be built?

II. Legal Basis

Questions of 'legal basis' loom large in EU legal discussions. The reason is straightforward, namely that the EU is based on the principle of attributed competence, meaning that its powers are limited to those conferred by the member states in the founding treaties.[68] It follows that, without a dedicated legal basis for taking action, the EU finds itself hamstrung. And so it was with environmental matters in the early days. Without a legal basis for legislating, the EC's environmental policymaking relied on a bodge, or, at the very least, a strained interpretation of the Treaty of Rome, especially Article 2, which stated the EC's tasks as including the promotion of "harmonious development [and] raising the standard of living through the establishment of a common market".[69] As such, the EC's early environmental policy existed under the guise of social policy. "Functional spillover"[70] was deployed

65 European Council (1972; cited in Holder & Lee 2007:157).

66 European Community, Action Programme for the Environment (First EAP), 1973 OJ (C 112/1). The Sixth EAP runs from 2002 to 2012; see The Sixth Environment Action Programme of the European Community 2002–2012, available at http://ec.europa.eu/environment/newprg/, last accessed 11 July 2012.

67 See generally Jans & Vedder (2011).

68 De Búrca (2003:403, 409).

69 Treaty of Rome, Article 2.

70 *Functional spillover* is the notion that integration is given impetus when cooperation in certain sectors of society creates technocratic pressure for cooperation in adjacent sectors; see Haas (2003:xxxiii).

as a device to justify the Dangerous Substances Directive[71] on the basis of Article 100,[72] and the protection of migratory birds on the basis of Article 235,[73] among myriad other instances.[74] Such creative use of these provisions to advance environmental ends might be thought to have required the imprimatur of the European Court of Justice, and indeed this was duly delivered in the case of *Procureur de la République v Association de Défense Des Brûleurs d'huiles Usagées* (hereafter *ADBHU* judgment).[75] In a "radical reading of the Treaty with, it must be said, little textual support",[76] the Court determined environmental protection to be an "essential objective" of the EC.

The formalisation of this position came hard on the heels of the *ADBHU* judgment in the 1986 Single European Act (SEA),[77] which created a specific title on environmental protection in the form of its Articles 130r-130t, as well as Article 100a. Inter alia, environmental considerations were required "to be a component of the Community's other policies".[78] Although this gave legislative effect to the *ADBHU* judgment, environmental policy continued to operate as a 'flanking policy', complementary to the internal market.[79] That said, the SEA also introduced the concept of *sub-*

71 Council Directive 76/464/EEC on Pollution Caused by Certain Dangerous Substances Discharged into the Aquatic Environment of the Community, 1976 OJ (L 129) 23 (EC).

72 Treaty of Rome, Article 100: "[The Council may] issue directives for the approximation of such laws, regulation or administrative provisions of the Member States as directly affect the establishment or functioning of the common market".

73 (ibid.:Article 235): "If action by the Community should prove necessary to attain, in the course of the operation of the common market, one of the objectives of the Community and this Treaty has not provided the necessary powers, the Council shall, acting unanimously on a proposal from the Commission and after consulting the European Parliament, take the appropriate measures".

74 Holder & Lee (2007:158–161).

75 Case 240/83, *Procureur de la République v Association de Défense Des Brûleurs d'huiles Usagées* (ADBHU), 1985 ECR 531 (concerning Council Directive 75/439/EEC on the Disposal of Waste Oils, 1975 OJ (L 194) (EC)).

76 Holder & Lee (2007:161).

77 Single European Act, 1987 OJ (L 169) 1 (EC).

78 (ibid.:Article 130r(2)).

79 Complementary but hierarchically subordinate; see De Búrca (2003).

sidiarity, thereby flagging the desire on the part of some member states to constrain the development of an EC-wide environmental regime.[80]

Subsequent treaty processes have followed the hares set running by the SEA. The 1992 Treaty on European Union (TEU) formally established environmental protection as a fundamental EC objective,[81] and the 1997 Treaty of Amsterdam included in Article 2 the promotion of "balanced and sustainable development of economic activities [and] a high level of protection and improvement of the quality of the environment" as EC objectives.[82]

In addition to the TEU's inclusion of sustainable development among the objectives of the EU, the title on the EU's external action states the following:[83]

> [That the] Union … shall work for a high degree of cooperation in all fields of international relations, in order to … foster the sustainable economic, social and environmental development of developing countries … develop international measures to preserve and improve the quality of the environment and the sustainable management of global natural resources, in order to ensure sustainable development.

Accordingly, not only can environmental considerations form the legal basis for internal action, they can also be deployed to shape the 'external action' of the EU and its common foreign and security policy.

The latest element in the EU's constitution-by-treaty process is the Treaty of Lisbon.[84] While it does not radically alter the constitutional architecture

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80 SEA, Article 130r(4). The general aim of the principle of subsidiarity is to guarantee a degree of independence for a lower authority in relation to a higher body. Therefore, it involves the sharing of powers between several levels of authority – a principle which forms the institutional basis for federal states. When applied in a European context, the principle of subsidiarity serves to regulate the exercise of shared powers between the entity of the EC and its member states. On the one hand, it prohibits EC intervention when an issue can be regulated effectively by member states at central, regional or local level; on the other, it means that the EC exercises its powers when its member states are unable to achieve the objectives of the Treaties satisfactorily.

81 TEU, 7 February 1992, Articles 3(3) and 3(5), 1992 OJ (C 191) 1.

82 Treaty of Amsterdam Amending the Treaty on European Union, the Treaties Establishing the European Communities and Certain Related Acts, 2 October 1997, 1997 OJ (C 340) 1.

83 Consolidated Version of the Treaty on the European Union, Articles 21(2)(d) and 21(2)(f), 2006 OJ (C 155) 13.

84 Treaty of Lisbon Amending the Treaty on European Union and the Treaty Establishing the European Community, 13 December 2007, 2007 OJ (C 306) 50. See generally Ashiagbor et al. (2012).

of the EU for environmental purposes, it should be noted that the policy of integrating environmental policies is mentioned in a general context,[85] and in respect of energy policy.[86] Moreover, Title XX, entitled "Environment", states, inter alia, that "[U]nion policy on the environment shall contribute to … promoting measures at international level to deal with regional or world-wide environmental problems, and *in particular combating climate change*."[87] [Emphasis added]

The specific reference to climate change is highly significant.

A final, Lisbon-inspired innovation comes in the field of EU external action, such as negotiations with other countries.[88] In the particular context of multilateral climate change negotiations, this was of particular importance, as the question arises as to who negotiates for the EU: is it the EU itself or its member states? The problem of *Who do I call when I want to speak to Europe?* (apocryphally attributed to former US Secretary of State, Henry Kissinger) has been putatively addressed by Article 18 of the TEU, which provides for the appointment of a "High Representative of the Union for Foreign Affairs and Security Policy". The High Representative was intended in some quarters to operate as the EU's 'Foreign Secretary', although the current incumbent, Catharine Ashton, is rarely viewed in those lofty terms. Indeed, at the recent Durban Summit, the EU delegation was led, apparently with efficacy, by the Commissioner for Climate Action, Connie Hedegaard.[89]

What the foregoing demonstrates, at least in formal terms, is the remarkable development of legal capacity for the EU in the environmental realm. A policy area unknown to the EEC in its formative period, it has developed

85 Consolidated Version of the Treaty on the Functioning of the European Union, Article 11, 5 September 2008, 2008 OJ (C 155) 47 (hereinafter *TFEU*): "Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development".

86 (ibid.:Article 194(1)): "In the context of the establishment and functioning of the internal market and with regard for the need to preserve and improve the environment, Union policy on energy shall aim, in a spirit of solidarity between Member States, to: (a) ensure the functioning of the energy market; (b) ensure security of energy supply in the Union; (c) promote energy efficiency and energy saving and the development of new and renewable forms of energy; and (d) promote the interconnection of energy networks".

87 (ibid.:Article 191(1)).

88 See generally Cremona (2008); Cremona & De Witte (2008).

89 Harvey (2011).

into a complex and sophisticated set of legal institutions, instruments and norms. In terms of functions, it is notable that, although the EU and its member states commonly conclude 'mixed agreements' with third countries and international organisations[90] in the environmental field, the negotiations of the same – in the climate change arena at least – are very much led by the EC, not by its member states. As far as internal measures are concerned, the constitutional architecture has evolved to foreground environmental considerations, and new modes of governance have emerged to respond to such ambitions.

III. Environmental Governance

With the environment firmly located within the European legal firmament, the 1990s saw a shift in the modes of environmental protection. The long-standing so-called command-and-control model[91] was supplanted by more "flexible" and "responsive" modes of governance.[92] The reasons for change are in some respects common to cognate developments in other polities – the ascendancy of classical liberal thought in public policymaking, globalisation, and economic competition – but there are other reasons particular to the EU, such as waves of enlargement (with first Greece, Spain and Portugal, and then Central and Eastern European states), leading to a focus on the implementation of policy rather than new enactments. Specifically with reference to the discussion in the previous section, Simon Deakin has argued that –[93]

> … the revival and growth of interest in economic theories of law is closely bound up with contemporary policy debates over regulation versus deregulation … and the appropriate role of the state in ensuring the efficient delivery of public services.

90 Hillon & Koutrakos (2010).

91 Black (2001:103): "'[C]ommand and control' is more a caricature than an accurate description of any particular regulatory system …. Essentially the term is used to denote all that can be bad about regulation: poorly targeted rules, rigidity, ossification, under- or over-enforcement, unintended consequences. The extent to which [command and control] does or does not live up to its caricatures is an empirical question which has been debated elsewhere".

92 See von Homeyer (2009:7–24).

93 Deakin (1996:66).

The retreat from the high constitutionalism of the EU to governance or regulation can be evidenced in numerous ways. One of those which attracted much commentary in the 1990s was the increased variety of actors engaged in the EU policymaking processes, which included functionally dense committee structures,[94] agencies and advisory bodies.[95] Although operating within existing structures of EU policymaking (the Council, the Commission, etc.), these new institutional actors brought with them influential new modes of working, such as comitology.[96]

Gráinne de Búrca focuses –[97]

> … on the range of policy processes that have been evolving over the past decade or more and expanding considerably in recent years both to new and existing areas of EU activity … the open method coordination.

A form of governance which is cast in contradistinction to the traditional modes of European constitutionalism and command-and-control, the open method coordination is described by De Búrca as "less top-down in nature than before [and] premised on a more participatory and contestatory conception of democracy … [but not without] the risk of dominance of particular economic values."[98]

Given the new governance's problem-solving, deliberative and accommodating nature, it is not surprising that there has been an impact on flexibility in instrument choice. Moreover, the embrace of flexible regulation is, in part, a response to the changing nature of the objects of environmental law. Acute end-of-pipe air and water pollution, which can be readily solved by BATs, is increasingly being supplanted by more complex, globally salient and persistent, open-ended environmental challenges, of which climate change is obviously one.[99]

The point is not that these are developments unique to the EU – they are not[100] – but that they represent new forms of governance within it that are

94 Joerges & Vos (1999).
95 Dehousse (1997).
96 Joerges & Vos (1999).
97 De Búrca (2003:404). The open method coordination consists of (1) setting EU-level guidelines for achieving objectives, (2) establishing benchmarks for comparison, (3) translating EU guidelines into (sub-)national policies, and (4) periodic peer review.
98 (ibid.).
99 von Homeyer (2010:121, 127).
100 Stewart (2003:437).

procedurally characterised by multilevel integration, participation, decentralisation and experimentation.[101] Substantively, and most pressingly for present purposes, they mark a shift in the choice of tools in the environmental realm from the classic licensing approach towards flexible instruments: a mode of 'new governance' that foreshadows the keystone in the EU's current climate change policy – the EU ETS.

D. EU Climate Change Regime[102]

The confluence of economic theories of law, the growth of environmental policy within the structures of the EU, and the instrumentalisation of climate change policy for both internal and external reasons by the EU[103] leads with seeming inevitability to the EU ETS. This Part briefly surveys the ETS's prehistory before explaining its operation to date and the important revisions made to it in the form of the 2009 *Climate and Energy Package*. While it may be seen as an exemplar of cost-effective, market-based regulation, the better view is more nuanced.

I. Pre-EU ETS: From Direct Regulation to Market-based Mechanisms

European leadership in combating climate change has become a familiar trope. In the multilateral arena, Europe has led efforts for efficient and effective approaches to climate change mitigation. That said, the deployment of a market-based mechanism as a solution to GHG emissions is a turnaround of some moment, given the EU's historic hostility to such tools.[104] Since Kyoto, however, the EU has sought to position itself as a global leader in this policy area, with market mechanisms as its primary instrument.[105]

The EU's warm embrace of market solutions to environmental problems is emblematic of its changing policy toolkit over the past decade. For present purposes, it suffices to note that prior to and continuing into the 1990s, the

101 Sabel & Zeitlin (2010:1).
102 See more generally Ghaleigh (2009:367).
103 See the discussion on the motivations for the EU's Climate and Energy Package in Part D, Section III.
104 See Damro et al. (2008:185).
105 See Oberthür & Kelly (2008:35).

EU is commonly characterised as having adopted a policy approach of 'regulatory environmentalism', premised on the assumption that reliance on free-market solutions would misallocate natural resources and produce inadequate incentives to prevent environmental degradation.[106] There also existed, however, a secondary and emerging strain in EU policy that, as early as 1993, in the form of the Community's Fifth Environmental Action Programme, acknowledged the limitations of command-and-control regulation and the utility of market mechanisms to "internal[ise] external environmental costs".[107] This approach cohered somewhat better with the well-detailed preference of the US for environmental markets, which were deployed with mixed success in the sulphur oxide/nitrogen oxide contexts.[108] Indeed, according to one account, the schooling of EU officials by their US counterparts in the "great success of the US acid rain training program put to rest many concerns about cap and trade".[109] Also familiar is the influence that US domestic policy had on the negotiations at Kyoto, the architecture of the Kyoto Protocol, and in particular the flexibility mechanisms contained in its Articles 6, 12 and 17.[110] Although it might be tempting to characterise this as the EU having 'lost' the battle of ideas over the optimal means by which to tackle climate change and subsequently embracing the new settlement, we have already seen that the EU was, in the early 1990s, already experimenting with economic incentives.[111]

The Kyoto Protocol commits the EU–15[112] and all new member states (except Cyprus and Malta) to an 8% GHG reduction by the end of 2012, compared with 1990 base-year levels. Reductions were to be reassigned to

106 Golub (1998).

107 A European Community Programme of Policy and Action in Relation to the Environment and Sustainable Development, 1993 OJ (C 138) 5; see also Swanson (1995).

108 Ellerman (2006:48); see also Footnotes 41–50 above with their accompanying text.

109 Wiener & Richman (2010:363). The 'greatness' of these successes is far from universally agreed; see Stavins (1998, 2003).

110 Ghaleigh (2007:139).

111 See Swanson (1995).

112 *EU–15* refers to the member countries in the EU prior to the accession of ten candidate countries on 1 May 2004, namely Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

member states pursuant to the EU's own Burden-sharing Agreement.[113] Foremost among the jointly implemented[114] responses of the EU is the Emissions Trading Directive.[115] The Directive followed EC consultations, studies, and finally a Green Paper,[116] which not only acknowledged the EU's Kyoto obligations, but also deemed it necessary that the UNFCCC process should not represent the outer limits of the EU's relevant ambitions.

II. EU Emissions Trading Scheme

The EU ETS, which came into force in 2005, is a central policy instrument to achieve the climate policy objectives of the EU. All 27 member states participate in the scheme, as well as three non-members (Iceland, Liechtenstein and Norway). Its coverage will extend in 2013 to aluminium and ferrosilicon production, having included aviation in 2012, which was added to the original sectors of power and heat generation, oil refineries, and installations for the production of ferrous metals, cement, limes, paper and ceramics.[117] In 2009, the scheme accounted for 43% of the EU's total GHG emissions, encompassing approximately 11,000 emitting installations.[118]

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113 Council Decision 2002/358 Concerning the Approval, on Behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Joint Fulfilment of Commitments Thereunder, 2002 OJ (L 130) (EC). Pursuant to this, some member states with historically low emissions are permitted to increase their emissions (i.e. Portugal +27.0%, Greece +25.0%, Spain +15.0%), while others with historically high emissions are required to cut their emissions significantly below Kyoto-mandated levels (i.e. Germany 21.0%, the United Kingdom 12.5%).

114 Kyoto Protocol, Article 4(1): "Any Parties included in Annex I that have reached an agreement [may] fulfil their commitments under Article 3 jointly …".

115 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC). For various articles on aspects of the EU ETS's details, see Michaelowa & Butzengeiger (2005:1).

116 Green Paper on Greenhouse Gas Emissions Trading within the European Union, COM (2000) 87 Final (8 March 2000).

117 Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 OJ (L 140/63) (EC).

118 European Environment Agency (2011).

While the European Climate and Energy Package (discussed in Part D, Section III below) extends to issues of fuel efficiency and quality, vehicular emissions, biofuels, renewables, and carbon capture and storage, it is no exaggeration to describe the EU ETS as the keystone in the architecture of the European response to global climate change.

The EU ETS is in its basic structure a conventional cap-and-trade scheme. An overall 'cap' on emissions is set by a central authority and divided into tradable units. These units represent an allowance to emit a specified amount of GHGs. Installations subject to the cap are required to surrender an allowance for every ton they emit. The number of allowances under the cap can be reduced annually, thus ratcheting down emissions. These allowances may be given away for free to installations ('grandfathered')[119] or sold at auction. Covered installations trade these allowances, so that the cheapest reductions possible are achieved. Companies that emit more than they have allowances to cover face a penalty.

Beyond this generic schema, the EU ETS's specific approach to coverage and allowance should be noted. The Directive's coverage of activities in its first two phases (i.e. 2005–2007 and 2008–2012) excluded aviation, shipping and, most contentiously, the aluminium and chemical sectors.[120] The EC's Explanatory Memorandum to its original proposal justified the chemical exemption on the basis of the industry's limited contribution to the EU's total carbon dioxide emissions (approximately 1% of the total) and the fact that the large number of installations (approximately 34,000) would add significant administrative complexity to the scheme.[121] The Memorandum remained silent on the exclusion of the aluminium sector.[122] These choices

119 See Martinez & Neuhoff (2005:61).

120 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), Annex I. Amendments to the scope of the Directive to include aviation have recently been adopted; see Directive 2008/101 of the European Parliament and of the Council, of 19 November 2008, Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, 2009 OJ (L 8) (EC).

121 Proposal for a Directive of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61/EC COM (2001) 581 Final, pt. 11, 2002 OJ (C 75E) 33.

122 For a very good discussion of the role of industry lobbying and regulatory capture in the design of the EU ETS, see Meckling (2011:Ch. 5).

have generated much subsequent controversy, not least before EC courts. Indeed, as I have written elsewhere, the EU ETS is the most heavily litigated instrument of EU environmental law.[123]

Allowances have been a source of at least equal controversy.[124] Defined by Article 3(a) as the right to emit one ton of carbon dioxide equivalent[125] during a specified period,[126] allowances are allocated and issued to installations by way of a two-stage process. Stage 1 requires each member state to develop national allocation plans (NAPs) "stating the total quantity of allowances that it intends to allocate for that period and how it proposes to allocate them … based on objective and transparent criteria, including those listed in Annex III."[127]

Such NAPs are subject to EC approval, only after which may member states definitively determine the total quantity of allowances and the allocation of the same among installations.[128]

The EU ETS has been implemented in phases – 2005 to 2007 and 2008 to 2012 – which are coordinated with the Kyoto Protocol compliance period as well as with Phase III to run from 2013 to 2020. Phase I was commonly described as a learning-by-doing phase, allowing member states to become acquainted with a novel system and to make progress towards their Kyoto Protocol commitments and towards meeting their particular carbon dioxide goals pursuant to the Burden-sharing Agreement.[129] It has been decided that the scheme will be extended to other GHGs and installations in Phase III.

123 Ghaleigh (2010:31).

124 For an ex ante discussion of the problem and challenges, see Grubb et al. (2005:127).

125 One ton of carbon dioxide equivalent (CO_2e) is used as the standard measurement in the carbon market. It is a measure of the global warming potential of various GHGs.

126 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), Article 3(A): "'Allowance' means an allowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of this Directive and shall be transferable in accordance with the provisions of this Directive".

127 (ibid.:Article 9(1)).

128 (ibid.:Article 9(3)).

129 Council Decision 2002/358 Concerning the Approval, on Behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Joint Fulfilment of Commitments Thereunder, 2002 OJ (L 130) (EC).

As is well known, the 'trial period' of Phase I was characterised by a price collapse in late April 2006, after the publication of the verified emissions data – by member state after member state – revealed that emissions were significantly below their allocations to installations. Early 2006 pre-announcement over-the-counter prices were slightly over €30 per ton. They had fallen by mid-May of that year to approximately €15 per ton, and then to near €0 from early 2007 until the end of Phase I. In a sense, it is inaccurate to characterise this as a market failure: the market reacted precisely as it ought to have, by adjusting when information that changed expectations was made available. Once aggregate emissions and the resulting demand for allowances were known, the fact of over-allocation had its predictable price consequences.[130]

Thereafter, Phase II forward contracts dominated the markets' attention, with December 2008 EU Allowances ranging from €12 to €25 per ton, remaining within the €20–€24 band for the majority of 2007. Upon the commencement of Phase II, such prices remained durable (at around €20–€25 for most of 2007), revealing the price of emitting GHGs in the EU, but also sending a strong signal to Clean Development Mechanism (CDM) and Joint Implementation (JI) project developers that emissions reductions generated through projects which generated carbon credits would find a robust market in the EU ETS.[131]

A consequence of the Phase I price collapse was its impact on the design of Phase II. The EC's approach to the Phase II caps was much tighter, in an overt attempt to create demand for emissions reductions, whether generated within the EU or in non-Annex I countries. The Phase II cap for the EU–27[132] is 2,098 Mt per year, cutting member states' suggested allocations in NAPs by 245 Mt per year (10.4%). The largest absolute cuts were in Bulgaria, Germany and Poland, while the largest relative cuts were in the Baltic

130 In the EC's view, the "swiftly corrected market price of allowances demonstrat[es] convincingly that the carbon market is working" (Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading System of the Community, COM (2008) 16 Final 2 (23 January 2008)). There is, however, also an argument that over-allocation was accompanied by over-abatement; see Ellerman & Buchner (2008:270).

131 For the very extensive use made of Kyoto mechanism credits in the EU for compliance purposes, see European Environment Agency (2011).

132 The full membership of the EU, to be contrasted with the EU–15.

states.[133] These figures represent a cut of 130 Mt of carbon dioxide (6%) below 2005-verified emissions and 160 Mt of carbon dioxide (7.1%) below 2007-verified emissions. While the cuts in member states' allowances were deep, the pain has been considerably eased by Phase II's "credit limits" (the maximum CDM/JI volumes that can be purchased for compliance purposes), which vary according to member states, from 10% in most cases and up to 22% for Germany.[134] Coupled with tightness of allocations, this creates the possibility for sizable offset/credit imports.[135]

Two lessons emerge from this narrative. Firstly, we should make explicit the function and implications of a market-wide carbon price, as delivered by the EU ETS. A carbon price is a necessary element of any effective package to reduce GHG emissions.[136] The reason is that it creates incentives for businesses throughout the economy to reduce emissions, and for consumers to use energy more wisely; activities that cause the problem become more costly, and those that address the problem, less so. Carbon pricing sends a signal across the economy and creates incentives that reveal the cheapest ways of reducing pollution: such pricing allocates capital to improve efficiency and reduce emissions intensity, with the effect that, over time, the most efficient, least-polluting firms will have an advantage over less-efficient, higher-polluting firms.[137]

The carbon price collapse detailed above obviously undermines the rationale of carbon pricing as a driver of low-carbon investment. Although 2008 saw relatively strong carbon prices of between €19 and €29 per ton, that price has steadily declined since the onset of the global recession. As of August 2012, a familiar combination of factors has reduced the EU Allowances market to a parlous state. The ongoing global recession has, in combination with the Eurozone crisis and Canada's withdrawal from Kyoto, reduced European carbon prices to historic (Phase II) lows, around

133 Point Carbon (2008:28, Table 1).

134 Facilitated by Directive 2004/101 of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in Respect of the Kyoto Protocol's Project Mechanisms, 2004 OJ (L 228) (EC) 18 (known as the *Linking Directive*).

135 Although outside the scope of this article, large-scale credit imports create a reliance on emissions reductions made in CDM/JI projects whose ability to achieve actual emissions reductions continues to be questioned; see Wara & Victor (2008), raising questions of effectiveness and, thereby, market and public confidence.

136 Stern (2007:Ch. 15).

137 See Ackerman & Stewart (1985).

€3.80.[138] Needless to say, such prices are utterly inadequate for the purposes of driving the vast investments necessary to decarbonise the EU economy.[139]

Of more direct concern to lawyers is the matter of litigation. It is useful to recall Ackerman and Stewart's claim that market-based mechanisms have the merit, over command-and-control, of attracting less litigation: "[A] system of tradable rights will … reduce the incentives for litigation, simplify the issues in controversy, and facilitate more intelligent setting of priorities."[140]

It is certainly true that litigation of the precise sort associated with BATs and its associated inefficiencies has not been a feature of the EU ETS. Rather, the ETS has generated its own varieties of litigation, hand in glove with the development of the EU ETS to date. As I have explored elsewhere,[141] the sheer volume of litigation before EC courts that has arisen in respect of the EU ETS Directive is remarkable. The Directive has generated over 40 proceedings before the European Court of Justice, falling into four categories:

- Challenges to the validity of the Directive
- Infringement proceedings
- Challenges to EC decisions on the 'national allocation plans' in Phase I (2005–2007) and Phase II (2008–2012) of the EU ETS's operation, and
- a category of miscellaneous cases.

That body of case law compares unfavourably, in volume terms, with all other environmental instruments of EU law. To determine the relevant comparators to the EU ETS, the approach of Jan H. Jans and Hans Vedder is followed.[142] This approach maps 26 substantive areas of policy – from environmental impact assessments to environmental governance, eco-labelling, flood risk, emissions into the air, waste, transfrontier shipments of waste, wild birds, and climate change – which are addressed in 74 separate

138 Clark & Blas (2011). See also European Environment Agency (2011:46–47).

139 See House of Commons (2012:63) for oral evidence of Professor Michael Grubb and Professor Samuel Fankhauer, citing €50 per ton as the carbon price needed to drive low carbon investment to meet the target of 80% emission reductions by 2050.

140 Ackerman & Stewart (1985:1341–1342). See also (ibid.:1337): "Given the high costs of regulatory compliance and the potential gains from litigation brought to defeat or delay regulatory requirements, it is often more cost-effective for industry to 'invest' in such litigation rather than to comply".

141 Ghaleigh (2010:121).

142 Jans & Vedder (2011).

legal instruments. By comparing the total and per-annum number of EU court cases involving these environmental instruments and those relating to the EU ETS, we are given an indication of the exceptional nature of the EU ETS in EU law in respect of frequency of litigation. For ease of representation herein, however, those instruments that have been the subject of legal challenge fewer than five times have been excluded from Table 1, as follows:[143]

Table 1[144]

Legal Instrument	**Number of Actions**	**Years in Force**	**Actions per Annum**
DIR 2003/47 EC (Emissions Trading Directive)	43	6	7.2
DIR 2004/35 EC (Environmental Liability Directive)	7	3	2.3
DIR 75/442 EEC (Waste)	59	30	2.0
DIR 92/43 EEC (Habitats protection)	25	16	1.6
DIR 85/337 EEC (Environmental Impact Assessment Directive)	34	22	1.5
DIR 79/409 EEC (Wild Birds protection)	42	29	1.4
REG 259/93 EEC (Control or Shipments or Waste)	17	14	1.2
DIR 2000/60 EC (Water Framework Directive)	5	6	0.8
DIR 96/82 EC (Protection from Major Industrial Accidents)	7	10	0.7
DIR 2006/11 EC, codifies DIR 76/464 EEC (Pollution by Dangerous Substances Directive – Aquatic Environment)	17	34	0.5
DIR 80/68 EEC (Groundwater Protection Directive)	11	27	0.4
DIR 90/313 EEC (Freedom of Access to Information on the Environment Directive)	5	13	0.4
DIR 67/548 EEC (Relating to the classification, packaging, and labelling of dangerous substances)	7	38	0.2

143 For a fuller analysis of Table 1 and its methodology, see Ghaleigh (2010:50–51).
144 Reproduced from Ghaleigh (2010).

The key column is the fourth, "Actions per Annum" (by which the table is sorted). Firstly, the number of cases brought before EC courts pertaining to the EU ETS Directive is very high in comparison with all other instruments of EU environmental law. Of the 74 instruments surveyed herein, in terms of frequency of challenge, the EU ETS, with 43 actions, ranks second only to the venerable Waste Directive (59 actions). More significantly, however, when these figures are scrutinised on an annualised basis to reflect intensity of challenge, the EU ETS is an extraordinary outlier, attracting over seven challenges per year in its short life. The next most frequently litigated instrument in EU environmental law is the Environmental Liability Directive, with 2.3 actions per annum; but with only 7 actions in total for the latter, the possibility of statistical skewing is present. The Waste Directive has more data points, but at a rate of only two challenges per year, it is quite clearly the case that, across the entirety of EU environmental law, the EU ETS has attracted a unique number of challenges.

However we explain this, and whatever the merits of market-based mechanisms, they are not free from litigation. Rather, they are zones of the most intense contestation known to EU environmental law, where national governments, industrial actors and, indeed, extra-EU business interests entreat the courts to revisit substantive decisions taken by the political branches of the EU.[145] By way of the uncertainty that this adds to the carbon market, these can have direct impacts on the carbon price. Although the courts have in general resisted the pleas of litigants to expand supply (by loosening the overall level of the EU ETS cap)[146] or limit demand (by narrowing the class of those within the ambit of the EU ETS Directive),[147] they have not always done so and cannot be guaranteed to do so in the future.

To be fair to Ackerman and Stewart, their claim is that allowance auctioning is pertinent to the avoidance of litigation and this will only feature significantly in the EU ETS from 2013 onwards.[148] Would auctioning have

145 See Case C–366/10, *The Air Transport Association of America v Secretary of State for Energy and Climate Change* [2012] 2 CMLR 4.

146 See *Gorazdze Cement v Commission* [2008] ECR II–186.

147 Ghaleigh (2010:50–51).

148 In Phase III (2013–2020) a minimum of 50% of emissions allowances will be allocated by auctioning; see Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), as amended in Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and

taken the heat out of the challenges to the EU ETS and will it do so in the future? It is unlikely to be beyond the wit of lawyers to challenge auctioning's introduction. Furthermore, as noted, allowance-based challenges have not been the only form of challenge facing the EU ETS, nor the most important. Like other forms of environmental regulation, market-based mechanisms cannot be commended on the basis of their immunity from suit (even if one were to agree that that was a basis for commendation).

III. The Climate and Energy Package(s) — All Too Visible Hands?

Partly in response to these issues of robust legal challenges and weak price signals, the EU adopted a significant suite of additional policies in 2008 and 2009. The motivations for so doing, in addition to instrument effectiveness and coherence, certainly include the desire on the part of the EC to appear relevant by responding to an issue of high public saliency and thereby demonstrate its global environmental leadership.[149] Dieter Helm posits a further reason, noting that, "in 2008[,] the EU effectively made [climate change] its central policy focus" as a matter of expediency arising from the policy gap left by the failure to quickly ratify the Lisbon Treaty.[150] To this may be added the desire to arrive at the 2009 Copenhagen Conference of the Parties with a record of national achievement, both to placate non-Annex I concerns as to seriousness, and to shame laggard Annex I parties – the US in particular.

At the heart of what became the *Climate and Energy Package* was the 20–20–20 goal.[151] The numbers refer to the policy goal of achieving 20% emissions reductions (below 1990 levels), 20% energy efficiency, and generating 20% of the EU's primary energy from renewable sources, all by 2020. The Package consists of six separate instruments, which –

Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 OJ (L 140/63) (EC). In Phases I and II respectively, only 5% and 10% of allowances had to be auctioned; see Directive 2003/87, Article 10 (before the amendments). This auctioning is subject to various caveats; see Directive 2003/87, Article 14 (of the amended Directive). These caveats will likely themselves be the subject of litigation.

149 Schreurs & Tiberghien (2010:23).

150 Helm (2009:222–223).

151 20 20 by 2020: Europe's Climate Change Opportunity, COM (2008) 30 Final (23 January 2008).

(i) amend the EU ETS Directive[152]
(ii) differentiate national efforts to meet the goal[153]
(iii) regulate carbon capture and storage[154]
(iv) promote renewable energy[155]
(v) amend vehicle fuel quality,[156] and
(vi) amend performance standards for cars.[157]

There is a considerable literature on the Package,[158] and as a policy platform it has received all manner of plaudits, both from its authors[159] and no less gushingly from some academic commentators.[160] The present author shares, however, some of Helm's archly expressed doubts:[161]

> Any package with a title of matching '20' numbers has got to be primarily political … [It] targets an arbitrary number (20 per cent), and then for primarily political reasons applies this arbitrary argument to renewables and energy efficiency as well …[T]he package is very unlikely to have the intended effects.

152 Directive 2009/29 of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, Annex I, 2009 OJ (L 140/63) (EC).
153 Decision 406/2009 of the European Parliament and of the Council of 23 April 2009 on the Effort of Member States to Reduce Their Greenhouse Gas Emissions to Meet the Community's Greenhouse Gas Emission Reduction Commitments up to 2020, 2009 OJ (L 140/136) (EC).
154 Directive 2009/31 of the European Parliament and of the Council of 23 April 2009 on the Geological Storage of Carbon Dioxide and Amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006, 2009 OJ (L 140/114) (EC).
155 Directive 2009/28 of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 2009 OJ (L 140/16) (EC).
156 Directive 2009/30 of the European Parliament and of the Council of 23 April 2009 Amending Directive 98/70/EC as Regards the Specification of Petrol, Diesel and Gas-Oil and Introducing a Mechanism to Monitor and Reduce Greenhouse Gas Emissions and Amending Council Directive 1999/32/EC as Regards the Specification of Fuel Used by Inland Waterway Vessels and Repealing Directive 93/12/EEC, 2009 OJ (L 140/88) (EC).
157 Commission Regulation 443/2009, 2009 OJ (L 140/1) (EC).
158 See e.g. Helm (2009); Morgera et al. (2011:829); Scott (2011:805).
159 European Commission (2009).
160 Jordan et al. (2010) refers to the Package as "a momentous development".
161 Helm (2009:226, 229). See also Helm (2012:175–186).

> Though politicians may legislate for the future, if the package lacks credibility it will almost certainly be revised *ex post*.

Given the flood of *ex post* revision, discussed below, we might conclude that Helm's suspicions were well founded.

The EU's *Second* Climate Change Package – the adjective being italicised to indicate that this is not at all an official designation – seems to have picked up where the CEP left off, with scarcely a break in time between the two, to remedy its flaws. To some extent, the Second Package adds to the list of complementary measures of the original Package, with new measures on the ecodesign of goods[162] and enhanced energy efficiency standards for buildings.[163] These measures knit with the 2050 Low Carbon Economy Roadmap[164] of the EC's Directorate General for Climate Action, which plans for the post-2020 period, and include a series of proposed Directives on energy efficiency and energy infrastructure, an initiative on project bonds, and two further packages — a forthcoming EU infrastructure package and a *Third Energy Package* which was enacted in 2009.[165] Yet more demanding low-carbon ambitions are contained in the Energy Roadmap 2050 of late 2011.[166] A 'statement of intent' document rather than a binding instrument, it expresses the goal of 95% emissions reductions by 2050,[167] deploying and deepening the goals and mechanisms of the CEP.[168]

EU climate change policy has been in a state of almost permanent revolution since its inception. EU ETS Phase III[169] will run for eight years from 1 January 2013. The emissions cap will henceforth be set not by individual member states but by the EC – a direct response to the various challenges to National Allocation Plans – and features a steady trajectory towards 2020 to

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162 Directive 2009/125 of the European Parliament and of the Council of 21 October 2009 Establishing a Framework for the Setting of Ecodesign Requirements for Energy-related Products 2009 OJ (L 285) (EC).

163 Directive 2010/31 of the European Parliament and of the Council of 19 May 2010 on the Energy Performance of Buildings OJ (L 153) (EC); see Mertens (2012:327).

164 A Roadmap for Moving to a Competitive Low Carbon Economy in 2050, COM (2011) 112 Final (8 March 2011).

165 Mertens (2012).

166 Energy Road Map, COM (2011) 885/2 Final (15 December 2011).

167 (ibid.:2).

168 (ibid.:4).

169 Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading System of the Community, COM (2008) 16 Final 2 (23 January 2008).

reduce emissions by 21% overall, based on linear annual reductions of 1.74%.[170] The cap is then divided among member states according to emission levels under the EU ETS, and subject to a redistribution mechanism. Notably, the overall 'cap' figures are subject to EC modification during the detailed implementation phase, in order to meet the overall target of 20% by 2020 against a 1990 baseline.[171] Recent debates at member state level and in the European Parliament have accordingly called for measures to ratchet down supply so as to drive up price. These have included proposals for a setting aside of 1,400,000,000 allowances *and* an adjustment of the annual emissions reduction factor to 2.25%.[172] Although benefitting from the support of some member states, such as Denmark and the United Kingdom (UK) (which have traditionally been 'pro-climate action'), others, most notably Poland, are strongly opposed to such measures, which they see as 'gambling' with Europe's economic future.[173]

Phase III exhibits a higher degree of harmonisation, partly in response to criticism of Phases I and II. This is evident in the EU-wide cap being determined by the EC, and harmonised rules for transitional free allocation. Although these measures benefit EU ETS participants by creating a more level playing field, that goal is achieved by the EC exercising a higher degree of control in implementing the scheme. Further centralisation has been mooted by the UK Parliament's proposal for a "market oversight body [which] could make independent and expert adjustments to ensure that the ETS maintains the intended investment signals."[174]

A relatively new approach to climate change policy, and arguably the most significant, is the turn to unilateralism. In the EU, which is frustrated by the now long-familiar state of affairs whereby it leads, but nobody follows, a marked turn to unilateralism is discernible. The unilateralism of the

170 Directive 2003/87 of the European Parliament and of the Council, Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61, 2003 OJ (L 275) 32 (EC), Article 9.

171 (ibid.:Preamble, para. 14).

172 Sandbag, a leading environmental one-governmental organisation, has argued that over-allocation and the effects of the global recession require a Phase III setting aside of at least 3,100,000,000 allowances and a linear reduction factor of 2.52%; see Morris (2012:7).

173 Chaffin & Clark (2012).

174 House of Commons (2012:49–50).

EU is substantially motivated by the desire to negate carbon leakage,[175] but can also serve as a bargaining tool for the EU to deploy in international negotiations. Early instances of this approach are evidenced in Article 25 of the amended EU ETS Directive,[176] which creates a scheme whereby border tax adjustments could be put in place to protect EU industries vulnerable to leakage.[177]

More telling, however, has been the "courageous"[178] step to include aviation in the EU ETS. This extension of the scope of the EU ETS has forced all airline operators whose flights take off from or land in the EU to surrender allowances equal to the carbon dioxide emitted in the entirety of those flights, including the portion outwith EU airspace. A decision that has attracted considerable scholarly criticism,[179] this matter has been adjudicated by the European Court of Justice, which dismissed the challenge brought by the Air Transport Association of America.[180] Whether the case comes before the International Court of Justice or other forums, it seems likely that threats of a trade war will not disappear quickly. As of November 2012, the EU agreed to suspend this extension of the scheme until the end of 2013, in order to facilitate a comprehensive aviation agreement under the auspices of the International Civil Aviation Organisation.[181]

One very obvious inference to be drawn from this narrative of repeated correctives is that the presence of markets does imply the absence of the intervening hand of the state. This may not be news to those familiar with

175 In the CDM context, "Leakage is defined as the net change of anthropogenic emissions by sources of greenhouse gases which occurs outside the project boundary, and which is measurable and attributable to the CDM project activity"; Report of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on Its First Session, Decision 3/CMP.1: Modalities and Procedures for a Clean Development Mechanism as Defined in Article 12 of the Kyoto Protocol, Annex, 51, UN Doc. FCCC/KP/CMP/2005/8/Add.1 (30 March 2006), at http://cdm.unfccc.int/Reference/COPMOP/08a01.pdf, last accessed 3 February 2013.

176 Directive 2009/29, *supra* note 115.

177 Such a scheme was in part mirrored by the defunct American Clean Energy and Security Bill of 2009, HR 2454, 111th Cong. (2009). For a comparison of the two measures and their World Trade Organization compliance, see Ghaleigh & Rossati (2011:63).

178 House of Commons (2012:32).

179 Scott & Rajamani (2012:469).

180 Case C–366/10, *The Air Transport Association of America v Secretary of State for Energy and Climate Change*, [2012] 2 CMLR 4.

181 Chaffin & Parker (2012).

the Cohen/Hale assault on laissez-faire liberalism.[182] Both those who laud as well as those who lambast market-based solutions fall into the trap of believing them to operate outside the state's control. The European climate action experience demonstrates the fallacy of this mindset in two different ways. Firstly, as the EU ETS's dismal experience of problems of over-allocation, scope and a carbon price to drive polity-wide investment demonstrate, markets are far from self-correcting. In each of these respects, the state, whether in the form of the legislator or the courts, has had to intervene to effect some sort of market correction. It remains to be seen whether these corrections will be effective. Learning-by-doing is not a quick process. Secondly, the many non-ETS or even market-based elements of the EU's climate packages highlight the question of instrument choice that faces regulators. While economists sometimes bemoan this fact – the "one striking feature of current climate policy responses is that they are strongly guided by political factors, and only weakly by basic insights of economic theory"[183] – the evidence of the EU ETS and cognate regimes[184] is that this balance is not obviously wrong.

F. Conclusion

There can be no doubt that emissions trading is an instrument that solves problems for environmental lawyers and policymakers. With its promises of cost efficiency, and drawing on the many minds of the marketplace, it is a fixture in many climate change solutions, whether in existence,[185] forth-

182 This New-Deal-era body of work is comprehensively surveyed and referenced in Kramer (1999:112).

183 Hepburn (2011:365).

184 Stavins (1998).

185 In addition to the EU ETS, the International Emissions Trading scheme of the Kyoto Protocol, and those surveyed by Stavins (ibid.), there are schemes in operation in Australia (in New South Wales, and more recently at the federal level), New Zealand, the city of Tokyo, and in the US (the Regional Greenhouse Gas Initiative operates in north-eastern US states; the Western Climate Initiative operates in ten western states of the US and in provinces of Canada).

coming,[186] or nixed.[187] As a vehicle for achieving international cooperation on climate change mitigation, it clearly has considerable traction. The terms *transplantation* and *legal borrowing* have been used to describe the process of transnational mimesis by which economic instruments for environmental regulation travelled from the US to the EU;[188] the direction of travel seems to have been both reversed and diverted, despite the less-than-optimistic narrative – much of which is well known to policymakers – of the EU's experience. Indeed, the optimistic narrative of the EU's climate change policy is clearly difficult to sustain. Accordingly, the question is less whether market-based instruments *can* facilitate international cooperation on climate mitigation, but whether they *should*.

Starting with the motivations of the EU's shift to market-based regulation, these are far more complex than is often asserted. Lessons from the US sulphur oxide/nitrogen oxide experience certainly played a role, but they must be seen in the context of wholescale regulatory shifts within the EU more generally, in areas ranging from food safety to product liability, and including environmental protection. Moreover, the enhanced 'constitutional' prominence of environmental concerns within the EU's treaty structure has knitted with an emerging strategic desire for the EU to project powers and norms through its external actions. The prospect of a first mover's advantage in the global carbon market certainly loomed. On the evidence to date, the approach of the Harvard theologian, Peter Gomes, seems apt – it is the second mouse that gets the cheese.[189] Although the EU has sought to protect its position in the carbon market, and more broadly by way of unilateral measures, it is far from clear that it will achieve its aim.

Secondly, and drawing on Ackerman and Stewart,[190] if one of the expected outcomes of an emissions trading scheme is the avoidance of 'counterproductive litigation' by powerful organised interests, the EU ETS has

186 Emissions trading schemes are scheduled to begin in China (pilot schemes in six provinces and cities in 2013, with a view to developing a nationwide trading scheme by 2015), and South Korea (from 2015, with approximately 60% coverage of its GHG emissions), as well as in California and Quebec.

187 The American Clean Energy and Security Bill of 2009, HR 2454, 111th Cong. (2009), proposed a cap-and-trade scheme, but failed to achieve Senate approval in mid-2010.

188 Wiener (2001).

189 Gomes (2003). Perhaps the Chinese or Australian or South Korean advocates of forthcoming emissions trading schemes see themselves in this light?

190 Ackerman & Stewart (1985).

not delivered. On the contrary, the remarkable volume of litigation before the EU courts can be seen as a series of attempts by member states (and private parties coordinating with them) to limit the impacts of the EU's ambitious climate change policy on their activities and on those of enterprises operating in their territory. This is unlikely to be a lesson that has gone unnoticed in other polities.

Thirdly, the notion of a simple recourse to markets is just that – simplistic. As evidenced by the CEP and the plethora of measures since, market mechanisms need to be buttressed by a range of relatively traditional forms of 'direct regulation' – whether fuel standards, energy efficiency goals, or subsidies for infrastructure, for example. Like all other markets, the ETS is a creation of the state and is necessarily reliant on regular maintenance from the same. Invisible hands are notable for their absence. The intervention of the state has been substantial and iterative. The idea that markets can 'do the job' is heavily undercut by fairly traditional command-and-control mechanisms that operate at various levels.

Finally, the promise of seamless markets has not been delivered in the EU. The contrast herein is to the costly bureaucracies which are necessary for the operation of command-and-control systems, and which necessarily involve the lobbying of industry and environmental groups as well as government intervention. Again, the above narrative can be characterised in exactly those ways, with the extraordinary windfall payments to the power sectors (€19,000,000,000 in Phase I, €71,000,000,000 in Phase II)[191] being only the best known example of this. Whether responding to oversupply in the allowance market or the need to address the non-traded sector, or increasing the scope of the EU ETS, since its coming into force the scheme has been reviewed, amended and extended almost continuously. As a consequence, the role of the various EU and member state bureaucracies has been central. Given that the responsibility for setting the overall cap was transferred from member states to the EC, this process of bureaucratic centralisation has only increased over time.

Whatever else can be said of EU climate change law and policy, straightforward or handy characterisations are simply not available. For non-environmental strategic reasons, the EU has placed climate change at the heart of its external relations and internal industrial and energy policy. The operative mechanisms are diverse. Whatever may be said of the EU's climate

191 House of Commons (2012:Evidence 63).

change project, its past performance and current instantiation give few grounds for believing it to be, or likely to become, a success.

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