

CHAPTER 1

Introduction

In an increasingly urgent environmental situation, the Emissions Trading System is not delivering emissions cuts. Policymakers can make fundamental changes to the way the EU ETS [European Union Emissions Trading System] works: excluding offsetting, stopping free permits to polluters, setting a much tighter cap, and preventing the use of banked permits from earlier phases of the scheme. But they must also consider a return to other important policy mechanisms which are currently being overshadowed by carbon trading, such as budgetary reform, tougher renewable and energy saving targets, CO₂ taxation, efficiency standards and national legislation. Only by doing so can Europe bring down its emissions in line with scientific evidence and historical responsibility.¹

This damning assessment labels the EU's flagship emissions reducing programme to fight climate change as 'not fit for purpose'.² Friends of the Earth are not alone in highlighting the failure of the EU ETS to deliver significant levels of emissions abatement that can make a real difference to climate change policy. In a 2010 report, Sandbag ominously warned that, in the absence of considerable improvements, the EU ETS risked 'becoming an emissions trap and an increasingly redundant tool in European climate policy'.³ Improvements could include legislative provisions 'to correct caps in light of exogenous emissions reductions such as those brought about by the recession'.⁴ An additional recommendation was that companies be incentivized by way of tax advantages to cancel unused emissions allowances – also called emissions permits – the tradable regulatory instruments created by the EU ETS. The following statement, made in the context of cancellation, is particularly interesting:

1. Friends of the Earth Europe, *The EU Emissions Trading System: Failing to Deliver* 9, 2010, http://www.foeeurope.org/sites/default/files/publications/FoEE_ETS_failing_to_deliver_1010.pdf (accessed 19 May 2014).
2. *Ibid.*
3. Sandbag, *Cap or Trap? How the EU ETS Risks Locking-In Carbon Emissions* 11, 2010, http://www.sandbag.org.uk/site_media/pdfs/reports/caportrap.pdf (accessed 19 May 2014).
4. *Ibid.*, 11, 48 – 49.

Once companies are given a *legal property right* to an emissions permit the vast majority of permits in circulation can then only be removed through *voluntary* cancellation.⁵ (emphasis added)

This statement gives rise to important and – so far – unanswered questions. Has EU environmental policy – perhaps inadvertently – created private property rights in regulatory instruments? If so, what are the wider implications of this legal status for the conceptualization and functionality of property rights?

These two lines of enquiry form the starting point of the book. Thus far, neither issue has been satisfactorily addressed by either policymakers or scholarship. These issues matter for two distinct reasons. First, their resolution can determine the success or demise of the EU ETS as a valuable weapon in the regional and global fight against climate change and an important helping hand for the Union in making the transition to a progressively greener, less fossil fuel-dependent economy. The success – or failure – of the EU ETS as a market-based instrument of environmental regulation will also act as a benchmark for assessing the likelihood of success of rapidly proliferating tradable permit regimes in other jurisdictions. Second, the lines of enquiry put forward here reveal important findings about the evolutionary nature of property rights in a regulatory environment. Specifically, the lines of enquiry unveil the complexity of crafting an analytical construction of these rights that can achieve multiple and potentially conflicting public policy goals and adapt to contexts which may even require taking into consideration interests other than such goals.

The EU ETS, principally through the EU ETS Directive,⁶ has created a market in emissions allowances and emissions-based financial instruments which are freely tradable between a wide range of participants, both regulated – for instance industrial installations – and non-regulated, such as banks, hedge funds and other financial institutions and even individuals.⁷ The EU ETS aims to reduce CO₂ emissions by 21 % from 2005 levels by 2021, and is divided in three Phases: Phase I (2005-2007), Phase II (2008-2012) and Phase III (2013-2020). Each Phase sees the imposition of a gradually reducing total cap on EU-wide emissions. Within the respective caps, emissions allowances can be traded, so that regulated entities can achieve the mandated reductions at the lowest possible cost, whether by investing in new technologies to abate emissions, or purchasing more allowances in the market.⁸ The EU ETS therefore combines a command and control mode of regulation – as embodied by the cap – with a market-based mechanism of tradable instruments to achieve the set levels of emissions reductions in the most cost-efficient manner.

As a system of regulation which employs tradable instruments to achieve its public policy goals, emissions trading in general has emerged as a persuasive solution to the global problem of climate change. It has been persuasively argued that the flexibility of the trading element and its translatability across different legal systems

5. Sandbag, *supra* n. 3, at 51.

6. Directive 2003/87/EC of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community OJ 2003 L275/32.

7. *Ibid.*, Arts 12(1), 19(2).

8. European Commission Climate Action, *The EU Emissions Trading System (EU ETS)*, http://ec.europa.eu/clima/policies/ets/index_en.htm (accessed 19 May 2014).

has equipped emissions trading with significant advantages in the climate change sphere over available alternatives, such as standards-based regulation or taxation mechanisms.⁹ On the other hand, significant areas of contention exist in respect of the use of tradable permit regimes to counteract air pollution. For instance, the objectives pursued by this mechanism have been criticized, in that it only aims for a given emissions target to be reached at the lowest possible cost, rather than to reduce emissions as such.¹⁰ Moreover, it has been remarked that the supposed innovatory effect of tradable permit regimes may not be what it seems, since such regimes may in fact stifle innovation by effectively compelling firms to keep reducing emissions at the facilities with the lowest abatement costs.¹¹ The fairness of tradable permit regimes has also been questioned. They may disadvantage developing countries by disincentivizing them from improving their industries, and instead encourage them to maintain more rudimentary, low-emission industries and sell permits to developed countries, which in turn can continue to pollute and increase their profits.¹²

These critiques highlight the existence of a very legitimate and important debate about the desirability of tradable permit regimes from an environmental and public policy perspective. Whilst not aiming to underplay the relevance of the debate, the book accepts that this type of regime has been chosen as the regulatory path in the EU, as well as in other jurisdictions which are soon to follow suit. The book aims to offer a means of improving the workability of the EU ETS as it is currently conceptualized, namely as an economically efficient regulatory regime of permits which can be freely traded by any market participants, whether or not regulated under the EU ETS. The view is therefore taken that trading beyond the purpose of compliance within the EU ETS is pivotal to maintaining market viability and thereby achieving the set environmental goals. It is argued that the achievement of the environmental goals pursued by a tradable permit regime such as the EU ETS depends on the continued viability of the market in emissions allowances. Such viability requires liquidity in the market, which, to exist, in turn requires a sufficient number of trading parties. 'A functional market is first and foremost a liquid market, with the following requirements: continuous sufficient supply and demand; enough market parties; and minimal market restrictions ...'.¹³ In particular, 'ensuring a deep market with multiple participants – in particular,

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9. J. Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 Yale L.J. 677 (1999): carries out a comprehensive comparative analysis; D. Dudek & J. Palmisano, *Emissions Trading: Why Is This Thoroughbred Hobbled?* 13 Colum. J. Envtl. L. 217, 219 (1988): discusses the suitability of emissions trading to address major environmental problems such as climate change.
 10. R. Baldwin, *Regulation Lite: The Rise of Emissions Trading*, 2 Regul. Gov. 193, 197 (2008).
 11. D. Driesen, *Is Emissions Trading an Economic Incentive Program? Replacing the Command and Control/Economic Incentive Dichotomy*, 55 Wash. & Lee L.R. 289, 332 – 336 (1998).
 12. Baldwin, *supra* n. 10, at 202 – 203.
 13. C. de Jong & K. Walet, *Compliance Strategies in the US Acid Rain Program*, in *A Guide to Emissions Trading: Risk Management and Business Implications* 204 (C. de Jong & K. Walet eds., Risk Books 2004).

beyond those solely with compliance obligations – [enhances] the likelihood that the price signal generated by trading is a reliable indicator for investment decisions’.¹⁴

Broad participation in the allowance market, meaning the inclusion of participants trading for investment and speculative purposes rather than for compliance reasons, is said to assist with minimizing the cost of complying with the emissions cap by increasing liquidity and thereby lowering trading costs for participants. ‘In a more liquid market, regulated firms that wanted to buy or sell allowances, particularly in large numbers, could more quickly identify another party with whom to trade without affecting the market price of allowances’.¹⁵ An experiment-based analysis has shown that non-regulated entities – meaning entities not subject to environmental regulation such as the EU ETS – trading in the emissions market ‘directly enhance the liquidity of the permit market, thereby favoring investments in low pollution-emitting technologies’.¹⁶

The value of the EU emissions market reached EUR 106 billion in 2011, with transaction volumes of 7.9 billion tonnes of CO₂ equivalent.¹⁷ Despite this level of growth, emissions prices have fallen dramatically, as evidenced by the lowest point (below EUR 4) in the first part of 2014.¹⁸ The fall in price has been caused by a surplus of allowances in the market. The reasons for the surplus are an over-allocation of emissions allowances to regulated installations in Phase I of the EU ETS¹⁹ and the permitted carry-over of unused allowances from Phase II to Phase III,²⁰ coupled with a general slowdown in production – and thus a corresponding reduction in emissions – caused by the worldwide economic crisis.²¹ The price depression in the market seriously threatens the environmental credentials of the EU ETS as an effective tool of climate change policy in the EU’s drive towards a low-carbon economy, as the following part demonstrates. In October 2012 the UK Energy Secretary called for the cancellation of over 1 billion allowances created under the EU ETS. The hope was that

14. A. Hedges, *The Secondary Market for Emissions Trading: Balancing Market Design and Market Based Transaction Norms*, in *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, 311 (D. Freestone & C. Streck eds., Oxford University Press 2009).

15. T. Dinan & A. Stocking, *U.S. Cap-and-Trade Markets: Constraining Participants, Transactions, and Prices*, 6 Rev. Environ. Econ. Policy 169, 172 (2012).

16. L. Taschini, M. Chesney & M. Wang, *Regulated and Non-Regulated Companies, Technology Adoption in Experimental Markets for Emission Permits, and Options Contracts* 4, 13 – 16, 2011, <http://eprints.lse.ac.uk/37577/> (accessed 19 May 2014).

17. World Bank, *State and Trends of the Carbon Market* 9 – 10, 2012, <http://go.worldbank.org/FVAX4G7AQ0> (accessed 19 May 2014).

18. Business Green, *EU Carbon Price Rides the “Rollercoaster” as Emissions Fall*, 2 April 2014, <http://www.businessgreen.com/bg/analysis/2337543/eu-carbon-price-rides-the-rollercoaster-as-emissions-fall> (accessed 19 May 2014).

19. M. Pohlmann, *The European Union Emissions Trading Scheme*, in *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, 353 (D. Freestone & C. Streck eds., Oxford University Press 2009); D. Ellerman & B. Buchner, *The European Union Emissions Trading Scheme: Origins, Allocation, and Early Results*, 1 Rev. Environ. Econ. Policy 66, 69 – 70 (2007).

20. European Commission Communication, *Analysis of options to move beyond 20% greenhouse gas emission reductions and assessing the risk of carbon leakage* 3 – 4, COM(2010)265 final, 2010, <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC0265&from=FR> (accessed 19 May 2014).

21. World Bank, *supra* n. 17, at 9.

such a move would boost the flagging emissions price and resurrect the emissions market.²²

But what of the 'legal property right' in emissions allowances? If such a right exists, can allowances simply be cancelled under the current legal framework of the EU ETS? If the legal framework requires amendment before the regulator can cancel valid allowances in the market, what boundaries – if indeed any – should be placed on this discretion? The UK's position serves to illustrate a key tension between certainty in the emissions market and flexibility in regulation. Excessive regulatory intervention²³ to reduce supply in a private market can be both counterproductive and destabilizing: compliance with the EU ETS will become more expensive as emissions prices rise at a time of economic difficulty, and increased market volatility decreases investor confidence. On the other hand, a continued substandard emissions price discourages investment in green technologies and seriously undermines the EU's low-carbon trajectory.

The book explores the role of property rights in managing the tension of market certainty versus regulatory flexibility in the market-based system of regulation that is the EU ETS. It is crucial to determine whether property rights can successfully resolve this tension, and, if this is the case, exactly what type of property right is required, and with what characteristics and limitations. It is posited that two elements are required to strike the correct balance between the two variables of market certainty and regulatory flexibility, so that the EU ETS can achieve its environmental goals. The two requisite elements are an analytical construction of the legal interests created in emissions allowances (emissions entitlements), and an understanding of the public policy goals that the EU ETS seeks to achieve. The two elements are themselves interlinked: the success of the public policy goals is dependent on the analytical construction of emissions entitlements.²⁴ Without such a construction, it is contended that the EU ETS as an effective tool of environmental policy will ultimately fail because it will not be able to accommodate its various and potentially conflicting goals.

Providing a construction of emissions entitlements in order to enable the achievement of environmental goals is important beyond the confines of the case study provided by the EU ETS. Market-based regulation in the shape of tradable permit regimes is growing in popularity, particularly in the context of environmental and conservation policy. An Australian emissions trading scheme is set to launch in 2014,²⁵

22. Business Green, *supra* n. 18.

23. K. Gray, *Can Environmental Regulation Constitute a Taking of Property at Common Law?* 24 *Envtl. & Plan. L.J.* 161: highlights the two meanings of regulatory intervention, namely the importance of the distinction between the possibility that emissions allowances may be cancelled or otherwise expropriated, and mere regulation of use. The book is specifically concerned with the former, not the latter. The distinction is relevant, for instance, to the question as to whether or not compensation is payable. Mere regulatory interference with use would generally not attract compensation, but expropriation would.

24. S. Manea, *Defining Emissions Entitlements in the Constitution of the EU Emissions Trading System*, 1 *T.E.L.* 303, 323 (2012).

25. Australian Government, *Starting Emissions Trading on 1 July 2014: Policy Summary*, July 2013, <http://www.climatechange.gov.au/sites/climatechange/files/files/reducing-carbon/carbon-pricing-policy/cef-policy-summary-moving-ets.PDF> (accessed 19 May 2014).

and was preceded by a similar regulatory system in the US state of California in 2013.²⁶ New Zealand has been considering the idea of a tradable deforestation permit regime to regulate land use.²⁷ Further afield, suggestions have been made for the introduction of tradable whale catch quotas to reduce the numbers killed.²⁸ The book therefore speaks, first, to the environmental community, to regulators, economists, scientists, lawyers and campaigners: to all those who are preoccupied with the effectiveness of environmental policy.

Since the analytical construction of emissions entitlements affects the environmental success of the EU ETS, this construction necessarily involves drawing a dividing line between regulatory flexibility – as to the scope of intervention in the emissions market – and market certainty, in the shape of the protection afforded to traders. The connection between the analytical construction of entitlements and the success of regulatory systems of tradable permits has wider implications which provide rich opportunities for future research. How do we craft new, effective tradable permit regimes which can achieve ambitious public policy goals? Is it always possible to define the resulting entitlements in such a way as to enable the achievement of these goals? Or are there circumstances where other types of regulation are to be preferred? Should we follow the advice to consider returning to ‘other important policy mechanisms’ which have been sidelined by the recent fashion for tradability, such as taxation or standards-based regulation?²⁹ And, if alternative modes of regulation may be more appropriate, is there any possibility of combining them with tradable permit regimes in order to harness as many advantages as possible to achieve the public policy goal? These questions offer a few examples of available avenues which merit further investigation.

Second, the book speaks to property lawyers and theorists. The exercise of crafting an analytical construction of emissions entitlements in a way that can effectively achieve public policy goals reveals new, highly instructive insights into the complexity and fragmentation of property rights. The entitlements created by market-based regulatory systems of tradable instruments test the boundaries of property in ways that have not been comprehensively and comparatively analysed to date. The book gathers together and compares selected regimes that exemplify an instructive variety of property rights, and can offer useful parallels with emissions entitlements. In the first instance, this exercise helps to articulate a construction of emissions entitlements. It also more generally demonstrates the fluidity of the legal interests created by regulatory regimes to achieve public policy goals. A generic definition of these kinds of legal interests as private property rights does not accurately portray their precise scope and contents. Consequently, in the UK for example, the judgment in *Armstrong v.*

26. California Environmental Protection Agency Air Resources Board, *Cap-and-Trade Program*, <http://arb.ca.gov/cc/capandtrade/capandtrade.htm> (accessed 19 May 2014).

27. New Zealand Ministry of Agriculture and Forestry, *Design Options for a Tradeable Deforestation Permit Regime: A Supplementary Discussion Document for the Sustainable Land Management and Climate Change Consultation* 6, 2006, <http://maxa.maf.govt.nz/climatechange/consultation/discussion-document/tdpr/tradeable-deforestation-permit-discussion-paper.pdf> (accessed 19 May 2014).

28. C. Costello, S. Gaines & L. Gerber, *Conservation Science: A Market Approach to Saving the Whales*, 481 *Nature* 139 (2012).

29. Friends of the Earth Europe, *supra* n. 1, at. 9.

Winnington,³⁰ which holds that emissions entitlements represent private property, is not the end of the matter, and serves to highlight the continued importance of determining specifically what sort of property these entitlements represent, and with what contents.³¹ Legal interests created for regulatory purposes emerge as a special category of private property, whose characteristics are shaped by the regulatory goal which they have been created to pursue. Instead, the kind of analysis that is better suited to defining such legal interests necessarily involves a type-by-type examination of the different contexts where the interests are of relevance. How are the interests to be treated in insolvency? Can they form the subject of a trust? Can security rights be created therein, and can such rights be adequately enforced and protected? These are examples of questions which are particularly relevant in the context of commercially valuable tradable instruments created for a regulatory purpose. This incremental approach serves to comprehensively elicit the characteristics of the entitlements in situations where a generic private property rights categorization, without further elaboration, would be overly simplistic.

This kind of pragmatic approach also illustrates the changing nature of property in the regulatory state, where its subordination to the achievement of public policy goals has the potential to disrupt the traditional conceptualization and functionality of property rights. The rights-based analysis of entitlements created by tradable permit regimes put forward by the book illustrates the dramatic transformation of property beyond the limited conceptualization customarily employed by lawyers to date. Property in law generally means private property.³² In addition, some commentators speak of the new category of 'regulatory property',³³ also called 'hybrid property'³⁴ or 'statutory property',³⁵ whose primary function is not the protection of right holders – which traditional private property does – but rather, in effect, the protection of the object of property itself. Emissions entitlements are ultimately intended to protect a

30. *Armstrong DLW GmbH v. Winnington Networks Ltd* [2012] EWHC (Ch) 10, discussed in more detail in §3.05 *infra*.

31. See further §4.01 *infra*.

32. Unless it is expressly stated that we are referring to, for instance, state property, or public property which is accessible to all. For the purposes of the book, property is taken to mean private property, unless specified otherwise. This is because emissions entitlements cannot be regarded as either state or public property, due to their being held and traded in a private market.

33. K. Anttonen, M. Mehling & K. Upston-Hooper, *Breathing Life into the Carbon Market: Legal Frameworks of Emissions Trading in Europe*, 16 *Eur. Env'tl. L. Rev.* 96, 97 (2007); B. Yandle & A. Morriss, *The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons*, 28 *Ecology L.Q.* 123, 129 (2002); B. Yandle, *Grasping for the Heavens: 3-D Property Rights and the Global Commons*, 10 *Duke Env'tl. L. & Pol'y F.* 13 (1999); Wiener, *supra* n. 9, at 800.

34. C. Rose, *Expanding the Choices for the Global Commons: Comparing Newfangled Tradable Allowance Schemes to Old-Fashioned Common Property Regimes*, 10 *Duke Env'tl. L. & Pol'y F.* 45, 51 – 52 (1999); C. Rose, *The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems*, 83 *Minn. L. Rev.* 129, 164 – 166 (1998); R. Stewart, *Privprop, Regprop, and Beyond*, 13 *Harv. J.L. & Pub. Pol'y* 91, 93 – 94 (1990).

35. K. Gray, *Regulatory Property and the Jurisprudence of Quasi-Public Trust*, 32 *Sydney L. Rev.* 221 (2010).

certain composition of the atmosphere. The entitlements are not in the atmosphere itself, but are rights to pollute, whose aim is to safeguard the atmosphere.³⁶

However, the notion of regulatory property merely scratches the surface of analysing the nature and operation of entitlements created for public policy purposes. The goals of the EU ETS are to achieve cost-effective emissions reductions to levels scientifically required to tackle climate change and to support the Union-wide transition to a low-carbon economy. At the same time, the EU ETS needs to maintain the viability of the private emissions market, which is both a self-standing goal and the means of achieving the aforementioned public policy objectives.³⁷ The analytical construction of emissions entitlements that can best achieve these goals requires more than a purely generic conceptualization of property. Instead, it requires an analysis of the nature of property according to the various contexts in which it appears. The book therefore introduces the new notion of instrumental property, which has been created to reconcile and achieve multiple and potentially conflicting regulatory goals, and whose characteristics shift according to the different contexts in which it operates. In a wider sense, this opens possibilities for future exploration of other types of instrumental property. The implications of the proposed analytical exercise could well stretch the boundaries of property even further than emissions entitlements have done already.

The book thus weaves together the two themes: the need to craft an analytical construction of legal interests which can achieve the public policy goals of a regulatory regime, and the evolutionary nature of property rights in a regulatory environment which has been unveiled by this exercise. The analytical framework devised for emissions entitlements is intended to serve as a blueprint for deciding how to treat things of value for which we do not yet have a legal construction, where those things of value have been created for a regulatory purpose. The laissez-faire approach taken by emissions trading, whereby the EU ETS has created allowances and left them to be defined and valued by the private market, extends to an absence of a central construction of emissions entitlements.³⁸ This gap is problematic, since the environmental success of the EU ETS is premised on the success of the emissions market, which in turn depends on the analytical construction of emissions entitlements, for reasons which are discussed in more depth here.

§1.01 EMISSIONS TRADING IN NEOCLASSICAL ECONOMIC THEORY AND BEYOND

To conceptualize and legitimate tradable permit regimes, commentators typically rely on economic theory. Environmental economics has provided the dominant model for

36. M. Wemaere, C. Streck & T. Chagas, *Legal Ownership and Nature of Kyoto Units and EU Allowances*, in *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, 39 (D. Freestone & C. Streck eds., Oxford University Press 2009).

37. The goals of the EU ETS are discussed in further detail in this chapter and the next.

38. Manea, *supra* n. 24, at 303 – 304, 306.

crafting regulatory approaches to environmental protection since the 1960s.³⁹ This branch of economics has its foundations in the ‘standard paradigm of neoclassical economics’,⁴⁰ as it applies the ‘standard economic tool kit’ to environmental problems.⁴¹ The notion of tradable permits as instruments of regulation was notably articulated by Coase in 1960. He posited that the effects of economic actors on one another were reciprocal,⁴² and consequently argued that interparty bargaining in a market context – as opposed to centralized regulation – could achieve the most efficient outcome in addressing unwanted effects such as environmental degradation.⁴³

Coase’s approach was subsequently employed by commentators such as Crocker,⁴⁴ Dales,⁴⁵ Montgomery,⁴⁶ and Baumol and Oates⁴⁷ to apply the notion of tradable permits to environmental regulation. Regulated entities trade such permits as they see most economically viable, so that their production costs are kept as low as possible while the overall goals – such as emissions targets – set by public authorities are complied with. This system creates an incentive to trade the permits until the marginal costs of abatement are equal to the market price of the permits. If costs exceed price, more permits are bought. If costs are lower than price, the allowances can be sold and the proceeds can be used for abatement.⁴⁸ On the basis of the Coasean model, efficiency in the allocation and use of resources is the primary goal of tradable permit regimes. In neoclassical economic theory, the success of such mechanisms in achieving the regulatory goal is measured according to the extent to which they lower the costs of achieving this goal. Emissions trading lowers the costs of reducing emissions by allowing polluters to choose between the cheaper of two possible avenues of action.⁴⁹

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39. R. Hahn, *The Impact of Economics on Environmental Policy*, 39 *J. Environ. Econ. Manage.* 375, 375 – 376 (2000): notes the influence of environmental economics in the sphere of environmental regulation.
40. T. Tietenberg & L. Lewis, *Environmental and Natural Resource Economics*, 7 (Pearson/Addison Wesley 2009).
41. K. Turner, C. Perrings & C. Folke, *Ecological Economics: Paradigm or Perspective* 1, CSERGE Working Paper GEC 95-17 1996, http://www.cserge.ac.uk/sites/default/files/gec_1995_17.pdf (accessed 19 May 2014).
42. R. Coase, *The Problem of Social Cost*, 3 *J. L. Econ.* 1, 1 – 2, 28 – 42 (1960).
43. *Ibid.*, 2 – 8.
44. T. Crocker, ‘The Structuring of Atmospheric Pollution Control Systems’, in *The Economics of Air Pollution* 61 – 86 (H. Wolozin ed., W. W. Norton 1966).
45. J. Dales, *Pollution, Property and Prices* (University Press 1968).
46. W. Montgomery, *Markets in Licenses and Efficient Pollution Control Programs*, 5 *J.E.T.* 395 (1972).
47. W. Baumol & W. Oates, *The Use of Standards and Prices for Protection of the Environment*, 73 *Swedish J. Econ.* 42 (1971): propose the use of a pollution tax, but this instrument would be crafted so as to induce polluters to reduce emissions to a certain, pre-set level.
48. R. Turner, D. Pearce & I. Bateman, *Environmental Economics: An Elementary Introduction* 278 – 279 (Harvester 1994).
49. T. Tietenberg, *Emissions Trading: Principles and Practice* Ch. 2 (Resources for the Future 2006); R. Stavins, *What Can We Learn from the Grand Policy Experiment? Lessons from SO₂ Allowance Trading*, 12 *J.E.P.* 69, 78 – 79, 84 – 85 (1998); R. Stewart, *United States Environmental Regulation: A Failing Paradigm*, 15 *J. L. Com.* 585 (1996); R. Stewart, *Models for Environmental Regulation: Central Planning versus Market-Based Approaches*, 19 *B.C. Envtl. Aff. L. Rev.* 547, 552 – 555, 558 – 559 (1992); C. Sunstein, *Administrative Substance*, 1991 *Duke L.J.* 607, 634 – 637 (1991); R. Hahn & G. Hester, *Marketable Permits: Lessons for Theory and Practice*, 16 *Ecology L.Q.* 361, 363 (1989); B. Ackerman & R. Stewart, *Reforming Environmental Law*, 37

The choice is between abating emissions by, for instance, developing greener technologies, and buying additional emissions allowances in the market if productivity needs require the maintenance or increase of emissions levels.

Despite the dominance of the neoclassical economic model in the sphere of environmental protection regulation, this model exhibits two significant types of problem: it does not provide a comprehensive analytical construction of emissions entitlements, and it does not take into account certain social and ethical aspects which are crucial to how the public policy goals of regulatory systems are crafted.

[A] The Nature of Emissions Entitlements in the Neo-Classical Economic Model

First, the neoclassical economic model cannot assist with articulating an analytical construction of the entitlements created by tradable permit regimes. This is principally due to certain assumptions regarding the nature of rights in valuable resources that the model relies on. A tradable permit has been referred to general terms as ‘a transferable right to a common pool resource’, or, in narrower terms, as ‘a transferable right to emit a substance that can create pollution’.⁵⁰ Environmental economists generally view this entitlement as a property right.⁵¹ In economic theory, certainty in the understanding of entitlements is a recognized prerequisite for a viable market, and well-delineated property rights are considered fundamental to market exchange.⁵² However, when economists speak of property rights, they do not always mean the same as what is recognized as property in law.⁵³ For instance, a key strand of legal theory asserts that property rights exhibit certain requisite characteristics which place them in this particular legal category, such as the right to exclude others and the right to use the resource in question.⁵⁴ Economists do recognize some of the attributes which are required in law to make particular entitlements property rights: for example, De Alessi views the rights to transfer and use as part of private property,⁵⁵ while Demsetz⁵⁶ and Alchian⁵⁷ recognize the importance of the right of exclusion or non-interference.

Other economists, however, adopt conceptualizations which have moved substantially further from legal notions of property. Coase views property rights as entitlements against other parties. In the absence of transaction costs, it does not

Stan. L. Rev. 1333, 1341 – 1351 (1985); R. Hahn & R. Noll, *Barriers to Implementing Tradable Air Pollution Permits: Problems of Regulatory Interactions*, 1 Yale J. Reg. 63, 65 – 66 (1983).

50. D. Ellerman, *A Note on Tradeable Permits*, 31 E.R.E. 123, 124 (2005).

51. *Ibid.*, 126, 130.

52. B. Field & M. Field, *Environmental Economics: An Introduction*, 203 (McGrawHill Irwin 2009); D. Cole & P. Grossman, *The Meaning of Property Rights: Law versus Economics?* 78 Land Econ. 317, 317 (2002); T. Tietenberg, *Ethical Influences on the Evolution of the US Tradable Permit Approach to Air Pollution Control*, 24 Ecol. Econ. 241, 253 (1998).

53. Cole & Grossman, *supra* n. 52, at 317.

54. J. Penner, *The Idea of Property in Law*, 68 – 69, 71, 74 – 75, 152 (Oxford University Press 1997); T. Merrill, *Property and the Right to Exclude*, 77 Neb. L. Rev. 730, 731, 740 – 752, 754 (1998).

55. L. De Alessi, *Property Rights, Transaction Costs, and X-Efficiency: An Essay in Economic Theory*, 73 Am. Econ. Rev. 64, 67 (1983).

56. H. Demsetz, *Toward a Theory of Property Rights*, 47 Am. Econ. Rev. 347 (1967).

57. A. Alchian, *Some Economics of Property Rights*, 30 Il Politico 816 (1965).

matter which of the parties holds the right.⁵⁸ Where transaction costs do exist, it is generally regarded as more efficient if the legal framework decides on the allocation of property rights.⁵⁹ In its widest form, the economic understanding of property rights can encompass ‘virtually every device – public or private, common law or regulatory, contractual or governmental, formal or informal – by which divergences between private and social costs or benefits are reduced’.⁶⁰ Barzel, for example, has been criticized for ‘throw[ing] around the word “right” casually and without clear definition’.⁶¹ He distinguishes between ‘economic rights’ and ‘legal rights’ to property: a thief, for instance, can have the former, but not the latter.⁶² However, unless validated in law, a mere ability to make use of a particular resource is not a property right as such.⁶³ Barzel also regards contract as the principal means and first point of call for the allocation of property rights, with government protection being available as a default mechanism where voluntary, private contracting would not be able to adequately allocate the rights. For Barzel, contractual rules have primacy and are of the utmost importance, and legal property rights are subordinate to them and only apply where contract has failed: ‘[a]t the heart of the study of property lies the study of contracts’.⁶⁴ The perception of property rights in economics therefore lacks consistency: ‘[e]conomists have not been able to agree among themselves, let alone with legal scholars, on a common, consistent definition of property rights’.⁶⁵

Even those economics scholars who recognize some of the key characteristics of property required in law do not explore in depth why these characteristics are so crucial to the constitution of property rights, and in particular what kind of limitations on these characteristics can tip an interest from the property category to a different – and potentially weaker – type of right. These two avenues of investigation are, by contrast, of significant interest to lawyers. A high level of precision in the construction of property is necessary in order to be able to proceed to analysing new types of entitlements, such as those in EU emissions allowances.

[B] The Objectives of Tradable Permit Regimes: Cost-Efficiency and Beyond

Second, the neoclassical economic model has been criticized for missing certain social and ethical perspectives which are crucial to the conceptualization of regulatory systems. The absence of these wider perspectives throws an obstacle in the path of comprehensively articulating the public policy goals that such systems seek to achieve.

58. Coase, *supra* n. 42, at 2 – 8.

59. *Ibid.*, 15 – 19.

60. T. Merrill & H. Smith, *What Happened to Property in Law and Economics*, 111 Yale L.J. 357, 358 (2001): quotes R. Posner.

61. Cole & Grossman, *supra* n. 52, at 324 – 325.

62. Y. Barzel, *Economic Analysis of Property Rights*, 110 (Cambridge University Press 1997).

63. Cole & Grossman, *supra* n. 52, at 324 – 325; M. Heller, *The Boundaries of Private Property*, 108 Yale L.J. 1163, 1192 – 1193 (1999).

64. Barzel, *supra* n. 62, at 3 – 4, 7 – 9, 11 – 13, 33, 39 – 40, 141.

65. Cole & Grossman, *supra* n. 52, at 328.

Understanding the goals of tradable permit regimes beyond the cost-benefit analysis prescribed by the neoclassical economic model is an exercise that has been carried out using a number of approaches. The ones selected for discussion here illustrate the need to view emissions trading in the wider context of EU environmental policy and also from a social perspective, namely that of traders participating in the emissions market.

Ecological economics provides a notable critique of the efficiency-focused approach of environmental economics. It borrows the principal tenets of the traditional neoclassical economic model and infuses them with ideas from the natural sciences, notably ecology.⁶⁶ Ecological economics focuses on the physical viability of ecosystems and the consequent need to protect them against unbridled economic growth. The aim of environmental regulation thus becomes more than the cost-effective allocation of resources, and includes placing physical limits on economic development in order to protect endangered resources.⁶⁷ The views of ecological thinkers range from seeking to devise a way of harmonizing economic growth with environmental protection,⁶⁸ to favouring the resolution of environmental problems through an increased closeness to nature and the fostering of an ethical relationship based on respect for the environment, the so-called 'deep ecology' approach.⁶⁹ With emissions trading, policymakers have sought to address the issue of the maximum permissible levels of atmospheric pollution by means of the aggregate cap on emissions levels. However, it cannot realistically be envisaged that there will ever be a total prohibition on emissions even if it were unsustainable to continue to emit. This would most likely not be socially acceptable, as human life as we know it would not be able to continue without economic growth.

Linked to the view of physical resources as finite is the idea that emissions trading may not be able to continue indefinitely. Neoclassical economics, with its neutral approach to scarcity, assumes that a price can be put on climate stability and that this good can subsequently be traded in a market, which is what emissions trading does by pricing the entitlement to emit greenhouse gas pollution. The next assumption is that, even if the climate degrades at a given time, it can always be priced and traded again later. The normative issue of the inherent undesirability of climate change which is presupposed by the environmental policy behind emissions trading is absent from the neoclassical economic model, according to which the climate can continue to be traded *ad infinitum*, irrespective of its ever decreasing quality. This absence causes potential conflict in the context of emissions trading, namely between maintaining a viable emissions market and achieving the requisite levels of emissions reductions.

Aside from ecological economics, other strands of critique have persuasively argued that an area of public concern such as environmental protection necessitates

66. See R. Costanza et al., *An Introduction to Ecological Economics* (St Lucie Press 1997) for an authoritative account of ecological economics.

67. S. Baumgärtner et al., *Relative and Absolute Scarcity of Nature: Assessing the Roles of Economics and Ecology for Biodiversity Conservation*, 59 *Ecol. Econ.* 487, 490 – 492 (2006).

68. M. Sagoff, *Ethics, Ecology, and the Environment: Integrating Science and Law*, 56 *Tenn. L. Rev.* 77, 110 (1989).

69. E. Louka, *International Environmental Law: Fairness, Effectiveness, and World Order*, 16 – 17 (Cambridge University Press 2006).

the taking into account of social and normative factors, which may not be quantifiable within a standard exercise of cost-benefit analysis. For instance, the notion of distributional fairness requires that tradable permit regimes take into consideration the need to achieve environmental justice, particularly for less privileged, low-income communities.⁷⁰ In a wider sense, the idea of distributional fairness also highlights the importance of the social and participatory nature of tradable permit systems of environmental regulation. The interests to be accounted for and reconciled with one another necessarily include those of market participants, whether polluters which are regulated by the said system, or entities trading purely for investment purposes, public authorities and society at large. Furthermore, Heinzerling and Ackerman propose a revised type of cost-benefit analysis, which is more holistic and takes into account elements which are crucial to areas of public interest such as environmental protection, for example scientific information, the nature of the risks involved and the importance of providing for future generations.⁷¹ Their approach links in with the need to take into account the wider picture of EU environmental policy when crafting an analytical construction of emissions entitlements.

Moreover, the emissions market differs from markets in other types of instrument from the point of view of regulatory involvement. The degree of such involvement, due to the primarily environmental goals of emissions trading, is substantially greater than in other markets. In other words, although it has been persuasively argued that all markets are shaped by the characteristics of the social and institutional environment which they inhabit, the influence of these characteristics is of particular importance in the case of the emissions market.

The conventional neoclassical economic account of how markets function generally is based on the forces of supply and demand, which are formed by the rational, self-interested behaviour of market participants. The constitution and operation of markets are therefore little affected by social relationships: parties have access to perfect information, and the functionality of markets does not require prolonged human or social contact.⁷² This view has been challenged by insights from sociology. Specifically, writers such as Fligstein and Granovetter have argued that the role of social and political interactions in shaping markets is much more significant than the minimal impact assumed by the neoclassical economic account.

70. D. Kysar, *Law, Environment and Vision*, 97 Nw. U.L. Rev. 675, 685 (2003); R. Toshiyuki Drury et al., *Pollution Trading and Environmental Injustice: Los Angeles' Failed Experiment in Air Quality Policy*, 9 Duke Env'tl. L. & Pol'y F. 231, 271 – 273 (1999); L. Chinn, *Can the Market Be Fair and Efficient? An Environmental Justice Critique of Emissions Trading*, 26 Ecol. L.Q. 80 (1999); R. Lazarus, *Fairness in Environmental Law*, 27 Env'tl. L. 705, 712 – 714, 725 (1997); H. Gorovitz Robertson, *If Your Grandfather Could Pollute, So Can You: Environmental 'Grandfather Clauses' and Their Role in Environmental Inequity*, 45 Cath. U.L. Rev. 131, 139 (1995).

71. B. Ackerman & L. Heinzerling, *Priceless: On Knowing the Price of Everything and the Value of Nothing*, Ch. 9 (The New Press 2004).

72. A. Alchian & H. Demsetz, *The Property Rights Paradigm*, 33 J. Econ. Hist. 16 (1973); M. Granovetter, *Economic Action and Social Structure: The Problem of Embeddedness*, 91 Am. J. Sociol. 481, 481, 484 (1985).

The idea that ‘market structures include a wide variety of elaborated social structures’⁷³ is discussed by Fligstein, who argues that the constitution of markets is not determined universally, but instead depends on the nature of the relationships and interactions between participants in a given social set-up.⁷⁴ He devises a so-called political-cultural approach, which states that social action takes place in fields – also known as organized social spaces – that are governed by formal and informal rules of participation and functionality. Markets are thus a type of field, and reflect the social understandings and rules existent in a particular culture: they are ‘social constructions that reflect the unique political-cultural construction of their firms and nations’.⁷⁵ Moreover, ‘governments as a set of fields interact with markets as a set of fields’,⁷⁶ and devise rules intended to promote the stability of markets, such as competition regulation.⁷⁷ States thus ‘intervene, regulate and mediate’,⁷⁸ and range from interventionist regimes making direct substantive decisions for markets, to regulatory regimes that enforce market rules through intermediary agencies.⁷⁹

Granovetter presents another type of sociological argument and suggests that markets exist within the context of social relations: this is the so-called embeddedness of markets in social networks.⁸⁰ Actors’ actions are said to be ‘embedded in concrete, ongoing systems of social relations’.⁸¹ This social structure thus affects economic outcomes as it affects the flow and quality of information, is a source of reward and punishment and provides the environment for the emergence of trust between market participants.⁸² The social structure is constituted to a significant extent of non-economic activity, such as culture, politics and religion, which therefore affects economic activity.⁸³ Granovetter gives the example of trust and malfeasance: believing that others will behave morally and honestly, as well as behaving dishonestly and deceitfully are not likely to happen due to a generalized view of morality. Rather, they depend on the particular make-up of every set of social relations between economic actors, and arguably more so than on the internal organizational forms of those actors.⁸⁴

It seems logical to suppose that all markets are to some extent social and political creations, and not driven exclusively by the rational behaviour of market participants, which can be universalized irrespective of the particular social and institutional set-up. It is argued, however, that this social and political make-up lies on a spectrum: the social and political aspects of some markets are more pronounced than those of other

73. N. Fligstein, *The Architecture of Markets: An Economic Sociology of Twenty-First Century Capitalist Societies* 7 (Princeton University Press 2001).

74. *Ibid.*, 7.

75. Fligstein, *supra* n. 73, at 15–17, 97; N. Fligstein, *Markets as Politics: A Political-Cultural Approach to Market Institutions*, 61 *Am. Sociol. Rev.* 656, 670–671 (1996).

76. Fligstein, *supra* n. 73, at 19.

77. *Ibid.*, 19, 42, 73; N. Fligstein, *supra* n. 75, at 657, 660–661.

78. Fligstein, *supra* n. 73, at 42.

79. *Ibid.*; Fligstein, *supra* n. 75, at 661.

80. Granovetter, *supra* n. 72, at 481–482.

81. *Ibid.*, 487.

82. M. Granovetter, *The Impact of Social Structure on Economic Outcomes*, 19 *J.E.P.* 33, 33 (2005).

83. *Ibid.*, 35.

84. Granovetter, *supra* n. 72, at 487–493, 502–503.

markets. In particular, public authorities and the influence of public policy play a role in markets to differing degrees.⁸⁵ The regulatory function of an emissions market – such as that created by the EU ETS – is its primary feature. The existential purpose of such a market is to achieve certain public goals, notably to reduce emissions to scientifically acceptable levels and support a low-carbon economy. Such public objectives are not present in other markets, for instance those in physical commodities such as oil or gas, or those in traditional financial instruments such as bonds or shares. The emissions market has been created entirely artificially, at the regulatory level. The regulatory framework allows the market to function by creating its instruments and permitting tradability.

Specifically, the EU ETS contains detailed provisions on the mechanisms envisaged to achieve emissions reductions and support a low-carbon economy, for instance on the contents of the emissions permit to be held by a regulated entity,⁸⁶ and on the working details of monitoring and surrendering emissions allowances.⁸⁷ This focus reflects the primary purpose of the EU ETS, namely the reduction of emissions in accordance with a pre-determined, decreasing cap.⁸⁸ By contrast, the EU ETS does not prescribe any particular rules on the trading of allowances, which is open to both regulated and non-regulated entities.⁸⁹ There is consequently a gap between regulating the reduction of emissions – the ultimate purpose of the EU ETS – and regulating emissions trading, the means employed by the EU ETS to achieve the desired levels of emissions reductions, and effectively an intermediate purpose of the regulatory regime. While the behaviour of installations in terms of how they may carry out their emitting, EU ETS-covered activities is regulated in detail, participants in the emissions market – which include those regulated installations – are left to develop their own framework of rules as regards the trading of allowances. The emissions market thus has a particular social and collective nature. It is constituted by the interactions of different actors and organizations. It is originally a regulatory construct, and its public policy aspect remains its primary and defining characteristic, but its continued functionality is dependent on participants' involvement in the trading process.⁹⁰

A prime example of where the cost-effectiveness goal does not paint the full picture of what tradable permit regimes aim to achieve is the issue of low emissions prices in the EU market. 'Low or highly volatile prices have the potential to reduce incentives for investment in low-carbon technologies', which the EU ETS has undertaken to support as part of a general, Union-wide move towards a low-carbon economy.⁹¹ At the same time, on the basis of the neoclassical economic model, low prices simply indicate that the EU ETS is functioning as it should: purchasing

85. Fligstein, *supra* n. 73, at 11 – 13.

86. Directive 2003/87/EC, *supra* n. 6, at Arts 4 – 7.

87. *Ibid.*, Arts. 12, 14.

88. Directive 2003/87/EC, *supra* n. 6, at Art. 1; Manea, *supra* n. 24, at 303 – 304.

89. Directive 2003/87/EC, *supra* n. 6, at Arts 12(1), 19(2).

90. J. Knox-Hayes, *The Architecture of Carbon Markets: Institutional Analysis of the Organizations and Relationships that Build the Market* 18, 2009, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1395312 (accessed 19 May 2014).

91. Manea, *supra* n. 24, at 304, 314.

allowances in the market is cheaper than abatement. However, the model does not take into account the reality that EU ETS does not exist in a 'regulatory void', where cost-efficiency in emissions reductions is all that matters. The EU ETS is part of a greater regulatory scheme, the EU Climate and Energy Package, whose aims are to reduce emissions and increase the use of renewable energy, so that Europe can transform itself into 'a highly energy-efficient, low-carbon economy'.⁹² Furthermore, the EU ETS can play an important role in an international move towards a low-carbon society, which forms part of tackling complex environmental issues at the global level, for instance the effects of climate change on global health.⁹³ The wider issue of low-carbon development mandates that additional goals must be ascribed to the EU ETS, such as promoting greener technologies, which can be done by way of an adequate emissions price level.

The common denominator of these social and ethical concerns is the submission that there is a fundamental and underappreciated difference between the creation of a market as a means to achieve most effectively certain publicly defined regulatory objectives – namely reducing emissions and decarbonization – on the one hand, and the more conventional situation in which a market is created solely to provide an ostensibly neutral space where individuals can pursue their respective interests and where collective social preferences are thereby revealed rather than centrally defined. Whilst neoclassical economic theory is well equipped to conceptualize the latter type of market, it is less capable of providing an accurate narrative of the former type. This is because the application of the neoclassical economic model to social and regulatory phenomena necessarily involves normative choices which cannot be ignored; it can never be a neutral, technical or mechanical exercise. The absence of space for normative choices in the neoclassical economic model and its insistence on efficiency⁹⁴ as the yardstick for measuring the environmental performance of emissions trading may therefore render this mechanism less effective as a regulatory tool of environmental protection than hitherto assumed. An example where economic incentives cannot, on their own, address the environmental impact of pollution is offered by the suggestion that a synergy could be achieved in the EU ETS between economic efficiency and tortious liability, so as to address the physical as well as the economic consequences of emissions.⁹⁵

At the same time, the importance of the neoclassical economic model in environmental policy and, more specifically, EU climate change policy must not be underestimated. The neoclassical economic model remains the dominant account of how regimes of environmental protection are crafted. Articulating the goals of the EU

92. European Commission Climate Action, *The EU Climate and Energy Package*, http://ec.europa.eu/clima/policies/package/index_en.htm (accessed 19 May 2014); Manea, *supra* n. 24, at 313 – 314.

93. A. Costello et al., *Managing the Health Effects of Climate Change*, 373(9676) *Lancet* 1693, 1695 – 1696, 1719, 1723, 1729 (2009): highlight the importance of combined social and institutional commitment to moving towards a low-carbon economy.

94. Dudek & Palmisano, *supra* n. 9, at 218 – 219; Hahn & Hester, *supra* n. 49, at 361 – 362; Stavins, *supra* n. 49, at 70 – 72; Hahn, *supra* n. 39, at 378.

95. M. Lee, *Safety, Regulation and Tort: Fault in Context*, 74 *M.L.R.* 555, 576 (2011).

ETS does necessitate employing this model, since under a tradable permit regime, by definition, regulated entities reduce their emissions by assessing the cost-efficiency of purchasing allowances versus abatement.

Critics of the dominant model therefore need to engage with the tradable permit regimes that this model has legitimized. Such critics can deploy their lines of questioning of the dominant model to assist in articulating clear and comprehensive goals that regimes such as the EU ETS should be striving to achieve. These goals are likely to go beyond the cost-effectiveness element prescribed by the neoclassical economic model, so as to take into account the wider social and institutional context in which the EU ETS exists, in particular the wider goals of EU environmental policy. That cost-benefit analysis is fundamentally capable of engaging with wider social and ethical considerations – provided that the challenges of quantifying these considerations in the economic model can be overcome – has been recognized by commentators such as Lee.⁹⁶ The goals can include reducing emissions to lower levels than a cost-effectiveness assessment would recommend, and supporting the EU's centralized move towards a low-carbon economy. The principal role that can most usefully be played by the social and ethical perspectives which are missing from the dominant model is to enrich the vision of the regulatory goals of the EU ETS beyond pure economic efficiency. Emissions trading should entail an effective strategy which correlates with and supports the rest of EU environmental policy, while adequately protecting market participants so as to enable the trading element to support the regulatory goals.

In consequence, a comprehensive legal analytical construction of emissions entitlements must necessarily be crafted in a way which accommodates the multiple and potentially conflicting objectives revealed by the neoclassical economic model and its critiques. In effect, this legal construction is tasked with the implementation of a – modified – economic model. The exercise of crafting such a construction illustrates the instrumentalization of law: in particular, property law is employed in a regulatory context in order to pursue public policy goals which are dictated by an economic model. As noted earlier, this instrumentalization indicates that the nature of property is much more adaptable to various contexts than traditionally portrayed. It remains to be seen what the consequences of this adaptability are for the conceptualization and functionality of property law, an issue which is addressed in particular in the final chapter.

§1.02 AN ANALYTICAL CONSTRUCTION OF THE LEGAL ENTITLEMENTS CREATED BY EMISSIONS TRADING

Crafting an analytical construction of the legal interests created by tradable permit regimes, particularly emissions trading systems, is an issue of considerable practical importance. Trading regimes are proliferating in air pollution regulation across the

96. *Ibid.*, 577.

world, with significant differences in the understanding of emissions entitlements. The United States (US) Acid Rain Program, which served as a source of inspiration for the EU ETS^{97,98} and involves the trading of sulphur dioxide (SO₂) allowances, views these instruments as limited authorizations to emit SO₂, and therefore not property rights. Moreover, the government has the authority to terminate or limit such authorizations. At the same time, US case law has established that the allowances exhibit many characteristics of property rights as between private parties, though not against the government (as Chapter 2 demonstrates). By contrast, Australia's emissions trading scheme has specifically designated emissions entitlements as property.⁹⁹

It is consequently imperative to provide an authoritative legal analysis 'that can assist in determining why such different classificatory outcomes have been reached, and why these differences matter' for the success of environmental regulation.¹⁰⁰ The analytical approach followed in the book provides a rigorous evidentiary path which serves to ensure the legal coherence and persuasiveness of the construction of EU emissions entitlements. The approach is more systematic, comprehensive and unitary than the strands of discussion that have concerned themselves with the nature of emissions entitlements thus far. The approach is intended to serve as a working blueprint that enables the construction of any type of new legal interest created by a regulatory regime of trading, whether in air pollution regulation, other areas of environmental regulation, or beyond. For instance, biodiversity offsetting is being pioneered as a new market-based mechanism of environmental protection, and works by requiring developers to offset activities that damage conservation habitats by delivering equivalent biodiversity units in other locations.¹⁰¹

The scholarship discussing the nature of emissions entitlements has to date focused on three interconnected, overlapping areas of concern. The first is the legal categorization of the entitlements as property, which has been put forward by some commentators. The second explores views that question this categorization and point to certain characteristics of emissions entitlements which do not fit with notions of property. The third illustrates the challenge as well as the urgency of crafting an analytical construction of emissions entitlements that can accommodate multiple and potentially conflicting regulatory goals.

[A] The Legal Categorization of Emissions Entitlements as Property

For some commentators, the draw of the property categorization of emissions entitlements remains strong, even beyond the realm of neoclassical economic theory. Welch

97. F. Convery, *Origins and Development of the EU ETS*, 43 E.R.E. 391, 397, 407 (2009).

98. Clean Air Act Amendments, 42 United States Code, §7651b(f).

99. Clean Energy Act 2011 (Commonwealth), s. 103; Manea, *supra* n. 24, at 307 – 308, 315.

100. Manea, *supra* n. 24, at 307.

101. Economics for the Environment Consultancy and Institute for European Environmental Policy et al., *Technical Report for European Commission DG Environment, The Use of Market-based Instruments for Biodiversity Protection – The Case of Habitat Banking* 3 – 4, 2010, http://ec.europa.eu/environment/enveco/pdf/eftec_habitat_technical_report.pdf (accessed 19 May 2014).

writes that tradable permit entitlements belong to the category of property rights, which encompasses common property (which ‘can be used by anyone’), usufruct (a non-transferable right to exclude) and full ownership (which means both the right to exclude and the right to transfer¹⁰²).

Cole similarly considers SO₂ entitlements in the US Acid Rain Program to be property. The SO₂ entitlements are ‘akin to a usufruct, a leasehold or a defeasible fee to the environmental goods. These are certainly valuable property rights, though they amount to something less than fee-simple ownership’.¹⁰³ Cole’s explanation delves into the potential limitations on the scope of emissions entitlements, but employs a single view of property – as a ‘bundle of sticks’ – and automatically concludes that the particular bundle – meaning the characteristics constituting the entitlements – amounts to property. This conclusion leaves open the possibility that any set of characteristics of a legal interest could potentially render it categorizable as a property right. The reality is that, in law, not all rights are property rights; some are categorized as purely personal – for instance contractual – rights. A more detailed and nuanced discussion of other views of property, beyond the ‘bundle of sticks’ analysis, is therefore needed before a firm pronouncement on the categorization of emissions entitlements can be made.

In the specific context of the EU ETS, Spash notes that:

[a]llocating permits is equivalent to attributing polluters a property right... Once permits systems are established, and permits have been allocated, a Government has created property rights for pollution which the courts may well protect. Subsequent attempts to reduce the number of permits – that is, tighten the cap – could then require the Government to buy back permissions initially given away for free. Countries subject to a carbon cap and wishing to establish an ETS must therefore decide how to distribute permits knowing the potential for a shift in property rights.¹⁰⁴

Other commentators view emissions entitlements as property whose primary purpose is that assigned to it by neoclassical economic theory, namely attaining cost-effectiveness. Rolph explores the design characteristics of emissions entitlements; they are said to be transferable, long-term, and allocated based on historic use.¹⁰⁵ These entitlements are classified in the category of programmes to control externalities, and their characteristics are consequently explained based on this objective. Transferability, for instance, is said to be granted in order to ‘accommodate new entry into the industry’, as the regulator’s intention in placing limitations on the use of a resource is to continue such limitations permanently.¹⁰⁶ The notion that the role of air pollution

102. W. Welch, *The Political Feasibility of Full Ownership Property Rights: The Cases of Pollution and Fisheries*, 16 Pol’y Sci. 165, 166 (1983).

103. D. Cole, *New Forms of Private Property: Property Rights in Environmental Goods*, in *Encyclopaedia of Law and Economics* 284 (B. Bouckaert & G. De Geest eds., Edward Elgar 2000); D. Cole, *Clearing the Air: Four Propositions about Property Rights and Environmental Protection*, 10 Duke Envtl. L. & Pol’y F. 103, 113 – 114 (1999).

104. C. Spash, *The Brave New World of Carbon Trading*, 15 New Pol. Econ. 169, 180 (2010).

105. E. Rolph, *Government Allocation of Property Rights: Who Gets What?* 3 J. Pol. Anal. Manag. 45, 49 (1983).

106. *Ibid.*, 51 – 53; Wiener, *supra* n. 9, at 677: also highlights transferability as a key characteristic.

regulation is to control externalities is derived from the neoclassical economic model of environmental protection, and implies a view of environmental problems – such as climate change – as resolvable through the efficient allocation of resources.

Another efficiency-based assessment is offered by Pennings et al. in respect of emissions entitlements – which they call environmental rights – and EU milk quotas, termed production rights. Specifically, they assess transferability and so-called ‘property characteristics’, referring to the possibility of withdrawal of the right by public authorities. The benchmark used in this assessment is referred to as a ‘full right’. This is deemed to be a hypothetical right with ‘optimal characteristics in the sense of efficiency – that is, implementing a policy that is efficient for the affected firms as well as for society’.¹⁰⁷

The attributes of exclusion and transfer are also considered vital to the constitution of property rights by Yandle. Quoting Anderson and Leal,¹⁰⁸ Yandle speaks of so-called ‘3-D rights’, by which he means rights which are definable, defensible – meaning that third parties can be excluded – and divestible, or transferable.¹⁰⁹ This stance has been labelled free market environmentalism.¹¹⁰ Scholars such as Anderson, Leal, Yandle and Morriss are preoccupied with the evolution of property rights: why such systems have developed to protect certain resources, including the environment, and how they compare with command and control systems of regulation.¹¹¹ The reduction of transaction costs is considered an important part of the explanation as to the choice of a particular form of property-based regulatory solution over another.¹¹² The element of use has been identified as an additional requisite of tradable permit entitlements, alongside exclusion and transfer. Colby further argues that tradable permit regimes should define the duration of the entitlement and the scope of use, namely whether the entitlement is forfeited for lack of use or bankable for future use.¹¹³

[B] Questioning the Property Categorization of Emissions Entitlements

Some scholars do, however, qualify the categorization of tradable permit entitlements as property. Young and McColl note that, for accuracy’s sake, tradable permit systems should be described as ‘tradable permit, entitlement or allocation systems and not ... as tradable property right systems’, as the notion of property has ‘different connotations

107. J. Pennings, W. Heijman & W. Meulenbergh, *The Dimensions of Rights: A Classification of Environmental Rights and Production Rights*, 4 E.J.L.E. 55, 64 – 65, 68 (1997).

108. T. Anderson & D. Leal, *Free Market Environmentalism* 22 (Palgrave 2001).

109. Yandle, *supra* n. 33, at 15, 19 – 21, 29 – 30; T. Anderson & J. Bishop Grewell, *Property Rights Solutions for the Global Commons: Bottom-Up or Top-Down?* 10 Duke Env’tl. L. & Pol’y F. 73, 76 (1999): also espouse this view.

110. S. Eagle, *The Common Law and the Environment*, 58 Case W. Res. L. Rev. 583, 609 – 610 (2008); Yandle & Morriss, *supra* n. 33, at 131 – 132; A. Thompson, *Free Market Environmentalism and the Common Law: Confusion, Nostalgia, and Inconsistency*, 45 Emory L.J. 1329, 1333 – 1339 (1996).

111. Yandle, *supra* n. 33, at 30 – 36; Anderson & Leal, *supra* n. 108.

112. Yandle & Morriss, *supra* n. 33, at 139 – 141.

113. B. Colby, *Cap-and-Trade Policy Challenges: A Tale of Three Markets*, 76 Land 638, 648 – 650 (2000).

in different audiences and disciplines'.¹¹⁴ That emissions entitlements are not necessarily property rights is also recognized by Pennings et al., who use the example of the limitations on the definition of allowances in the US Acid Rain Program.¹¹⁵ Hahn and Noll describe the nature of the entitlement created by tradable systems of air pollution regulation as amounting to 'an implicit property right in the emissions permitted',¹¹⁶ though they also qualify this statement by noting that it is 'a limited property right'.¹¹⁷

Other commentators also note that emissions allowances exhibit the characteristics of definability, enforceability and transferability, which are necessary for market functionality. Instead of concluding that these characteristics warrant the property categorization, they refer to allowances as 'regulatory rights', whose limits are created by the trading system: they are 'somewhere between an administrative grant and private property'.¹¹⁸ Similarly, Anttonen et al. identify the key characteristics of EU ETS allowances as transferability and economic value, two aspects which enable a market to function. They also refer to allowances as 'regulatory property', which means that some public authority is retained over the emissions market.¹¹⁹

The Financial Markets Law Committee at the Bank of England (FMLC) notes that allowances 'have aspects of both administrative grants or licences and of private property', and that there is no EU-level categorization of emissions entitlements. Instead, it is left at the latitude of individual Member States to choose whether they wish to define the legal nature of these entitlements.¹²⁰ In the UK, for example, the FMLC opines that allowances will most likely be considered property.¹²¹ The FMLC views the clarification of the nature of emissions entitlements as crucial to ensuring the viability of the market, whose effectiveness can be seriously impeded by lack of certainty in the legal categorization of the entitlements, contrary to the purpose for which the EU ETS was established.¹²²

That emissions entitlements contain both private property and regulatory elements has also been expressed as follows:

[i]n sum, the EU Allowance does not fit easily in any legal system of the EU Members. It can be deemed as a right '*sui generis*' in many jurisdictions, carrying the following features: transferable permit; an administrative public right; an intangible good or a commodity; and a security or a financial instrument. It will also depend on the legislative purpose for how the property rights – and obligations – to the allowance will be defined.¹²³

114. M. Young & J. McColl, *Defining Tradable Water Entitlements and Allocations: A Robust System*, 30 *Ca. Water Resour. J.* 65, 66 (2005).

115. Pennings, Heijman & Meulenber, *supra* n. 107, at 59 – 60.

116. Hahn & Noll, *supra* n. 49, at 67.

117. *Ibid.*, 70.

118. Wemaere, Streck & Chagas, *supra* n. 36, at 44.

119. Anttonen, Mehling & Upston-Hooper, *supra* n. 33, at 97 – 98.

120. Financial Markets Law Committee, *Emissions Allowances: Creating Legal Certainty* 5, 7 – 8, October 2009, <http://www.fmlc.org/Pages/papers.aspx> (accessed 14 May 2014).

121. *Ibid.*, 11.

122. Financial Markets Law Committee, *supra* n. 120, at 15 – 16.

123. Wemaere, Streck & Chagas, *supra* n. 36, at 52; Pohlmann, *supra* n. 19, at 350 – 351.

Button further asserts that ‘a carbon unit is a sui generis right which ... exhibits characteristics of both a commodity and a currency’.¹²⁴ She notes that trading systems such as the EU ETS generally define what the unit enables holders to do (for instance to emit 1 tonne of CO₂ equivalent), rather than provide a legal characterization of the unit.¹²⁵ She also notes that a previous draft of the EU ETS Directive had defined emissions allowances as administrative authorizations, but was rejected by the European Commission Legal Service as it conflicted with the subsidiarity principle. Instead, the final adopted version avoided a legal characterization of the unit.¹²⁶ Button warns that the increase in investment-motivated trading in the emissions market means that ‘the use of bureaucratic, legalistic language like “administrative approvals” or “quasi-property rights” to refer to units of trade will not be tolerated by the industry’. She points out that the proliferation of investment trading poses new challenges in the shape of ensuring that emissions trading can still achieve its environmental goal efficiently and cost-effectively.¹²⁷

Another, more pragmatic approach suggests that emissions entitlements may be best construed according to the particular context in which it becomes necessary to elucidate their legal nature. Reporting on the conclusions of a workshop on the legal nature of emissions reductions organized by the Foundation for International Environmental Law and Development (FIELD) and Baker & McKenzie in 2004, Mace concludes that a number of the characteristics of allowances which are necessary for a viable emissions market exist already, such as transferability and a system of registration. Moreover, he notes that the nature of allowances depends on the context, for instance where there is a situation of insolvency, and that, therefore, the key features of allowances for the operability of the market are irrevocability and transferability, rather than express categorization as a particular type of right.¹²⁸ This view is supported by Anttonen et al., who observe that, for instance, English law does not generically categorize emissions entitlements, but instead leaves it to the courts to determine whether this type of instrument can constitute ‘property’ in specific scenarios, such as insolvency.¹²⁹

[C] The Importance of Crafting an Analytical Construction of Emissions Entitlements for the Attainment of Regulatory Goals

The imperative need to craft an analytical construction of emissions entitlements which enables the EU ETS to achieve its environmental goals is recognized by Button:

124. J. Button, *Carbon: Commodity or Currency? The Case for an International Carbon Market Based on the Currency Model*, 32 Harv. Envtl. L. Rev. 571, 572 – 573 (2008).

125. *Ibid.*, 574.

126. Button, *supra* n. 124, at 575; Wemaere, Streck & Chagas, *supra* n. 36, at 49.

127. Button, *supra* n. 124, at 583.

128. M. Mace, *The Legal Nature of Emission Reductions and EU Allowances: Issues Addressed in an International Workshop*, 2 J.E.E.P.L. 123, 125 (2005).

129. Anttonen, Mehling & Upston-Hooper, *supra* n. 33, at 98 – 99; M. Wilder, *Nature of an Allowance*, in *Climate Change: A Guide to Carbon Law and Practice* 101 – 102 (P. Watchman ed., Globe Business Publishing 2008).

it is important for governments to seek consensus as to the legal characteristics of the basic unit of exchange in [the emissions] market, and the related issue of which market model to adopt. The model ultimately adopted should reflect the economic substance of international emissions trading, while not compromising the environmental integrity of the system.¹³⁰

The success of tradable permit regimes of regulation is closely linked to articulating an analytical construction of emissions entitlements that goes beyond using economic efficiency as the sole or principal benchmark. Emissions entitlements in the EU ETS may well require the presence of the elements of exclusion, transfer and use in order to provide a cost-effective way of reducing emissions. Viewing efficiency as paramount,¹³¹ however, leaves open the important question of whether any limitations are needed on the scope of these elements, if the EU ETS is to pursue additional, wider goals. In particular, it has been asked how strong emissions entitlements are as against the regulator, and whether allowances can be put to crucial commercial uses in the market (namely whether security interests over allowances can be protected and enforced in an effective manner).¹³²

Dennis points out that emissions trading regimes such as the US Acid Rain Program may have – inadvertently – given rise to ‘two independent and contradictory goals’: making the air cleaner versus creating a viable emissions market.¹³³ The potential conflict between market certainty and regulatory flexibility elicits a key limitation on the scope of emissions entitlements: that they may be susceptible to regulatory intervention, in particular to cancellation or withdrawal from the market, should circumstances arise where the urgency of achieving increased environmental protection – meaning greater levels of emissions reductions than originally envisaged – so requires.

Cole remarks that:

The less secure property rights are, the less likely potential buyers will be to invest in them ... there is every reason to suspect that defeasible pollution rights would have lower market value than absolute pollution rights. Of course, if the market value of the rights falls too low, the market for them will simply disappear.¹³⁴

Cole, however, argues that, in the US Acid Rain System, the absence of security in the rights does not seem to have impeded trading, given that the US Environmental Protection Agency (EPA) will most likely treat allowances as if they were property

130. Button, *supra* n. 124, at 572.

131. D. Cole, *New Forms of Private Property: Property Rights in Environmental Goods*, in *Encyclopedia of Law and Economics* 275, 283 – 284 (B. Bouckaert & G. De Geest eds., Edward Elgar 2000); D. Cole, *Clearing the Air: Four Propositions about Property Rights and Environmental Protection*, 10 *Duke Envtl. L. & Pol’y F.* 103, 111 (1999).

132. See §4.03 *infra* for a discussion as to how the creation of security interests constitutes a use of a resource.

133. J. Dennis, *Smoke for Sale: Paradoxes and Problems of the Emissions Trading Program of the Clean Air Act Amendments of 1990*, 40 *U.C.L.A. L.R.* 1101, 1137 – 1138 (1993).

134. *Ibid.*, 1118, 1133, 1139 – 1140; Wemaere, Streck & Chagas, *supra* n. 36, at 50; Cole, *New Forms of Private Property: Property Rights in Environmental Goods*, *supra* n. 103, at 285; Cole, *Clearing the Air: Four Propositions about Property Rights and Environmental Protection*, *supra* n. 103, at 114.

rights, save in exceptional circumstances.¹³⁵ Dennis, on the other hand, recognizes that the EPA needs to reserve some degree of authority to intervene in the emissions market to reduce emissions if so required, but if this authority is too extensive, regulated entities could decide that the risk of allowance confiscation is simply too great to justify market participation.¹³⁶

Hahn and Hester are of the view that tradable permit systems would benefit from increased economic efficiency and therefore cost savings if ‘uncertainties over the definition of property rights’ were addressed, as such uncertainties lower the value of the allowances.¹³⁷ They do, however, also recognize that full property rights – enforceable against the issuing authority – would not be helpful in achieving environmental goals, as they would reduce regulatory discretion to amend emissions reduction goals as necessary.¹³⁸

The need for a trade-off between flexibility in regulation and certainty in the market is also recognized by Rose: tradable permit systems need to be sufficiently flexible to deal with ‘future ecological change’, and at the same time sufficiently certain so as not to discourage investment.¹³⁹ Providing regulated entities with ‘increased flexibility’ must necessarily be balanced against ‘offering environmentalists continuing progress toward environmental quality goals’; this means that the entitlements granted in permits must not be ‘too clear a property right’, so as to reconcile these conflicting interests.¹⁴⁰ It is worth noting that, in US law, the view that certain limitations on the entitlement are deemed necessary is significantly influenced by the factor of compensation: if the entitlements were deemed property rights, the government would have to compensate their holders for cancellation or expropriation.¹⁴¹ The concern regarding compensation may not directly translate – or at least not to the same significant extent – into the EU legal framework.

In the context of the EU ETS, Mace considers whether uncertainties in the legal nature of emissions entitlements could negatively impact on the functioning of a liquid market. He notes that, upon issue by the regulator, allowances are effectively administrative grants, but they assume property characteristics once they are held by market participants. There is consequently a difference of opinion between market participants, who feel that property rights are required to facilitate transferability and protect

135. Manea, *supra* n. 24, at 317; Cole, *New Forms of Private Property: Property Rights in Environmental Goods*, *supra* n. 103, at 292; Cole, *Clearing the Air: Four Propositions about Property Rights and Environmental Protection*, *supra* n. 103, at 114; Dennis, *supra* n. 133, at 1137.

136. Dennis, *supra* n. 133, at 1124, 1137.

137. R. Hahn & G. Hester, *Where Did All the Markets Go? An Analysis of EPA's Emissions Trading Program*, 6 *Yale J. Reg.* 109, 116 – 117, 149 (1989); Cole, *New Forms of Private Property: Property Rights in Environmental Goods*, *supra* n. 103, at 295; Cole, *Clearing the Air: Four Propositions about Property Rights and Environmental Protection*, *supra* n. 103, at 115.

138. Hahn & Hester, *supra* n. 137, at 150 – 151; Hahn & Hester, *supra* n. 49, at 378 – 379; Cole, *New Forms of Private Property: Property Rights in Environmental Goods*, *supra* n. 103, at 295 – 296.

139. Rose, *Expanding the Choices for the Global Commons: Comparing Newfangled Tradable Allowance Schemes to Old-Fashioned Common Property Regimes*, *supra* n. 34, at 62.

140. R. Hahn, *Economic Prescriptions for Environmental Problems: How the Patient Followed the Doctor's Orders*, 3 *J.E.P.* 95, 101 (1989).

141. M. Breger et al., *Providing Economic Incentives in Environmental Regulation*, 8 *Yale J. Reg.* 463, 480 (1991).

allowances against state confiscation, and public representatives, who wish to retain the flexibility to withdraw or cancel units as necessary for the purposes of environmental policy.¹⁴² In respect of the reservation of discretion on the part of the regulator, Winter, for instance, calls for more ambitious emissions reduction targets for the EU ETS – 40%–50% by 2020 – to reflect ecological necessity, and opines that installations that hold excess, unused allowances allocated for free should not be permitted to keep them.¹⁴³

Furthermore, the uncertainty as to the legal nature of emissions entitlements has given rise to practical questions relevant to the development of the emissions market, notably whether security interests can subsist in allowances. Anttonen et al. opine that the creation of security over allowances is possible in the UK, which allows the nomination of an ‘additional authorized representative’ in the allowances register.¹⁴⁴ The importance of establishing whether EU allowances can support the existence of security rights for the functionality of the emissions market has also been highlighted by the FMLC.¹⁴⁵ In the UK, the judgment in *Armstrong v. Winnington*¹⁴⁶ provides authority that third-party interests such as security interests can be created over emissions allowances. However, significant uncertainties remain over whether such security interests can be adequately protected and enforced, so as to lend them genuine legal and commercial value.¹⁴⁷

The areas of concern discussed here serve to emphasize the importance of clarification on two fronts. First, how susceptible are emissions allowances to regulatory intervention? Second, can allowances be put to important commercial uses which enhance the viability of the emissions market, notably can security interests created over allowances for the benefit of third parties be adequately protected and enforced? The answers to these two questions are closely linked to the goals that the EU ETS has set out to pursue. The scope of regulatory intervention and the range of uses to which allowances can be put will necessarily be determined by the fact that the EU ETS is primarily a tool of environmental regulation, designed to achieve certain scientifically mandated levels of emissions reductions in order to effectively address climate change and assist the EU in its move towards a low-carbon economy. Answering the two questions will provide the answer as to how best to resolve the tension between market certainty – which entails certainty as to the strength of the entitlement as against the regulator and as to the uses to which allowances can be put – and regulatory flexibility to intervene in the market in order to ensure the success of EU climate change as well as wider environmental policy. In turn, exploring – and resolving – this tension reveals the two key findings of the book: an analytical construction of emissions entitlements

142. Mace, *supra* n. 128, at 123 – 124.

143. G. Winter, *The Climate Is No Commodity: Taking Stock of the Emissions Trading System*, 22 J. Envtl. L. 1, 22, 24 (2009).

144. Anttonen, Mehling & Upston-Hooper, *supra* n. 33, at 98 – 99.

145. Financial Markets and Law Committee, *supra* n. 120, at 5, 8, 19.

146. *Armstrong DLW GmbH v. Winnington Networks Ltd*, *supra* n. 30, discussed in more detail in §3.05 *infra*.

147. Financial Markets and Law Committee, *supra* n. 120, at 5, 8, 19; see also §3.05 and §3.06 *infra*.

which can achieve the public policy goals of a regulatory regime such as the EU ETS, and the evolutionary nature of property rights in a regulatory environment.

**§1.03 A NEW ANALYTICAL FRAMEWORK TO CRAFT A
CONSTRUCTION OF THE LEGAL INTERESTS CREATED BY
TRADABLE PERMIT REGIMES OF REGULATION**

The focus of the book on crafting a comprehensive analytical construction of emissions entitlements in the EU ETS serves a dual purpose.

First, the practical question of the nature of these entitlements needs to be resolved as a matter of urgency, otherwise the emissions market is at substantial risk of failing, which would be a considerable set-back for the tradable permit regimes which are proliferating in other areas of environmental protection. It is of course recognized that tradable permit regimes have met with considerable and legitimate criticism as regards their environmental effectiveness. However, it remains the reality that this regulatory path has been chosen at the EU level, and has further inspired similar approaches in other jurisdictions. Consequently, the book aims to assess and improve the workability of the EU ETS as it is currently conceptualized. The book analyses the EU ETS as a market-based regime of regulation which aims to lower the costs of reducing emissions and facilitate an EU-wide transition to a low-carbon economy. These environmental goals are pursued by means of a market in emissions allowances, open to both regulated and non-regulated entities so as to assist with achieving sufficient liquidity for this market to remain viable.¹⁴⁸

Second, the analysis of EU emissions entitlements provides a springboard for the conceptual exploration of the contemporary nature of property, the traditional understanding of which needs to be revisited in order to enable such rights to meet the requirements of new, and specifically regulatory, contexts. The analysis conducted by the book thus highlights the complexity of regulatory innovation: the effects of tradable permit regimes reverberate far beyond the public policy – and notably environmental – goals which they have been primarily designed to pursue. This type of entitlements-based approach to environmental regulation triggers a host of new questions which are not traditionally associated with such regulation, in particular how the legal nature of the entitlements impacts on the achievement of the regulatory goals, and how the analysis of this legal nature affects the conceptualization of property in general.

The book puts forward an analysis which goes significantly further than the dominant neoclassical economic model and its critiques in identifying the goals of emissions trading, and uses the EU ETS as its case study. The innovation of the proposed analysis lies in the direct link made between the identification of the regulatory goals and the construction of the legal interests created in the tradable permits under the EU ETS. The fact that, in English law for instance, EU emissions entitlements have been categorized as property is not the end of the matter: such

148. See the introduction to the book for a discussion of the need for broad participation by both regulated and non-regulated entities in the emissions market.

categorization does not provide a full picture of the scope and contents of these entitlements that can best achieve the environmental goals of the EU ETS.¹⁴⁹ The analysis provided by the book also goes further than the neoclassical economic model and its critiques in articulating a comprehensive understanding of property rights, and consequently facilitates the construction of new types of legal interests created for regulatory purposes, such as EU emissions entitlements.

The approach taken by the book encapsulates in a previously unexplored manner the key feature of a tradable permit regime such as the EU ETS: that it is a mode of regulation reliant on the success of a private market.¹⁵⁰ This market, in turn, depends on a clear construction of the legal interests created in the tradable instruments.¹⁵¹ The neoclassical economic model and the associated social and ethical critiques represent building blocks to elicit the goals that the EU ETS is seeking to achieve as a tool of environmental policy, goals which in turn can be used to articulate a construction of emissions entitlements that can best pursue them. The book aims to enrich the current economics-based analysis of emissions trading as well as its critiques, by way of bridging the gap between these types of approaches and a legal analysis of the entitlements in the tradable instruments.

By emphasizing the interdependence between the goals of the EU ETS and the nature of emissions entitlements, the book further proposes a novel approach to articulating a construction of such entitlements. The exercise consists of a two-part analytical framework, which is intended to serve as a blueprint for crafting a construction of any new type of legal interest created to fulfill a regulatory purpose in the context of tradable permit regimes. The aim is ultimately to assist regulators faced with the prospect of creating a new tradable permit regime in a particular area of regulation, whether in climate change policy, other areas of environmental policy or beyond, as well as scholars writing in these areas. The analytical framework put forward here enables determining the legal nature of the entitlements to be granted in the permits, in accordance with the public policy goals that the relevant regulatory system aims to achieve. To this end, as noted earlier, the book introduces a new category of instrumental property, which encompasses entitlements created to achieve regulatory goals. Moreover, the construction of such entitlements varies with and adapts to the particular contexts in which they operate. As the conclusion argues, instrumental property differs in certain significant respects both from the generic property categorization ascribed to emissions entitlements in English law,¹⁵² and also from the notion of regulatory property previously advanced by commentators.

The importance of devising a comprehensive analytical framework that can help to elicit a persuasive and effective construction of emissions entitlements is demonstrated by the practical problems encountered in the EU emissions market and engendered by the absence of such a construction. Questions as to the scope of

149. See §4.01 *infra*.

150. Sunstein, *supra* n. 49, at 645: highlights that incentive-based regimes harness the flexibility of private markets to pursue regulatory goals.

151. Field & Field, *supra* n. 52, at 203; Cole & Grossman, *supra* n. 52, at 317; Tietenberg, *supra* n. 52, at 253.

152. See also §4.01 *infra*.

regulatory intervention in the emissions market and the range of uses of allowances have shown themselves to be of paramount importance in the context of the commercial contracts which constitute this market. The two issues of regulatory intervention and potentially reduced usability encapsulate risks for market participants that are peculiar to emissions trading and that are due to the regulatory origins of emissions allowances. Parties trading in the emissions market therefore need to be able to adequately protect themselves against these risks if the market is to remain functional. Such protection needs to be crafted using a dual approach of improved contractual drafting and regulatory clarification. By contrast with markets in conventional instruments such as equities, bonds and commodities, the emissions market has a public policy purpose which goes beyond economically benefiting its participants. Moreover, the environmental goals of the EU ETS can only be achieved if there is continued broad participation in the market in order to maintain its viability, where such participation is incentivized by the possibility of appropriately protecting the interests of participants against the aforementioned risks.

Consequently, the book works to determine whether the characteristics and limitations of emissions entitlements identified by the proposed legal analysis of property can effectively reconcile market certainty and regulatory flexibility in the contractual context. The categorization of emissions entitlements as instrumental property put forward here has important consequences for commercial relationships in the emissions market, as the ensuing scope of regulatory intervention and the potential use restrictions – in particular, the absence of effective protection and enforceability of security interests over emissions allowances – significantly curtail the ability of market participants to treat allowances in the same way as conventional instruments in the contractual context. In turn, the viability of the emissions market – which is constituted of the contractual relationships between trading participants – is directly linked to the success of the environmental goals of the EU ETS.

The first part of the analytical framework draws on common law theories of property to elicit a general understanding of property rights. The common law model has been selected as the focus of discussion, since the contracts which constitute the EU emissions market are preponderantly governed by English law. Some strands of theory emphasize the relative nature of property rights, whereby they are seen as a nexus of relationships between individuals and thus become conceptually difficult to distinguish from personal rights, except that the former type of right is held against a larger and less definite set of parties.¹⁵³ Other strands of legal theory, however, continue to emphasize the ‘otherness’ of property rights as the relationship between an

153. W. Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 Yale L.J. 16 (1913); W. Hohfeld, *Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 26 Yale L.J. 710 (1917): pioneered the idea of property as a nexus of relationships between individuals. This view subsequently came to be known as the ‘bundle of rights’ theory of property: property rights are made up of a variety of ‘sticks’, which represent the types of entitlements that owners have to the thing owned. On the basis of this view, there is effectively no qualitative difference between the traditionally separate legal categories of personal rights and property rights: property rights simply mean a collection of personal rights. Consequently, there are no requisite components which make up a property right; if one or more ‘sticks’ are missing, the right can still be a property right.

owner and the thing owned. These views posit that property rights are constituted of certain essential elements which give them their property status, namely the right to exclude others from accessing or enjoying the thing owned, and the right to use the thing owned.¹⁵⁴ The book adopts the latter view of property as constituted of a set of requisite elements, for the reason that this view accurately reflects a distinction between property rights and personal rights which remains very real in legal doctrine and practice. Moreover, the view of property as constituted of certain requisite elements provides the kind of analytical account required to craft a construction of new types of legal interests such as emissions entitlements. Further building on the view of property as constituted of the minimum necessary elements of exclusion and use, a third element is added: transfer. The right to transfer the object of ownership is an additional crucial characteristic in the context of commercially valuable legal interests: it must not be forgotten that tradability is the very foundation of the EU ETS as a market-based system of environmental protection.

The second part of the analytical framework encapsulates a new vision of how legislatively created rights regimes compare to one another and how the characteristics of the legal interests originating thereunder are connected to the respective goals of the regimes. This part of the analytical framework employs the requisite characteristics of exclusion, transfer and use identified from legal theories of property to examine three rights regimes which cover a broad spectrum of recognized legal interests. These regimes are intellectual property rights – which are property – EU milk quotas and spectrum rights (where the last two exhibit some, but not all characteristics of property). The elements of exclusion, transfer and use provide the analytical thread which links the three regimes to one another and also to the emissions trading regime created by the EU ETS, where emissions entitlements have not yet been conclusively categorized in law. The second part of the analytical framework explores the scope of exclusion, transfer and use for each of the three regimes which have already been categorized in law, how this scope is affected by the goals of each regime, and consequently how the ultimate categorization of the legal interests created by each regime has been achieved. Comparing the scope of exclusion, transfer and use in the three established regimes to the scope of these elements in the context of emissions entitlements, in view of the identified goals of the EU ETS, ultimately facilitates articulating an authoritative construction of such entitlements.¹⁵⁵ They constitute instrumental property, whose characteristics are primarily shaped by their regulatory goals and modified according to the particular context in which they operate.

This comparative approach to providing a construction of the legal interests created by regulatory regimes represents previously uncharted territory. It fills a notable gap between the conceptualization of rights in property theory and their application in pre-established regimes which have been created for the purpose of pursuing regulatory goals. The comparative approach therefore adds substantial value to existing property rights scholarship, as well as to analyses of legislatively created rights regimes with public policy goals. The dual analytical approach entwining

154. Penner, *supra* n. 54, at 68 – 69, 71, 74 – 75, 152; Merrill, *supra* n. 54, at 731, 740 – 752, 754.

155. Manea, *supra* n. 24, at part 5.

property theory and comparable rights regimes emphasizes the need to articulate a construction of legal interests which can achieve the public policy goals of a trading regime, and reveals new, significant findings regarding the evolutionary nature of property rights in a regulatory environment. Entitlements which have been legislatively created to achieve a specific regulatory goal, a category to which intellectual property rights, milk quotas and spectrum rights all belong, are composed of elements which are determined by the goal which the particular regime pursues. At the same time, as evidenced by the judicial treatment of milk quotas in the UK, this type of entitlement is not amenable to being subsumed under a generic legal label of private property. Rather, its characteristics vary according to the context where its analysis becomes necessary (for instance, insolvency). Similarly, emissions entitlements are likely to exhibit different sets of characteristics according to the circumstances in which they operate.

This is the notion of instrumental property which the book puts forward. This concept will be further elaborated and defended in the final chapter. In particular, that chapter will defend this notion against the potential criticism that the ensuing fluidity in regulatory purpose and context renders it difficult – and perhaps even impossible – to determine the precise nature of an entitlement which falls within the proposed new category. The final chapter will also argue that instrumental property differs considerably from the generic property categorization of emissions entitlements in English law, as well as from the idea of regulatory property. The notion of instrumental property is therefore able to provide a nuanced and comprehensive picture of the nature of entitlements created to achieve regulatory goals. It is argued that such an account is currently missing both from the property categorization of emissions entitlements in English law and from the concept of regulatory property.

§1.04 CHAPTER ROADMAP

Chapter 2¹⁵⁶ charts the origins of the EU ETS as a tool of climate change regulation to reduce emissions in line with the international requirements of the Kyoto Protocol, and credits the US Acid Rain Program with providing the inspiration for the EU trading regime. The chapter provides an account of the EU ETS and its constitutive framework, which is intended to serve as a useful reference point and glossary as the reader progresses through the book. The chapter subsequently explains the importance of the emissions market in achieving the environmental goals of the EU ETS and the consequent need to articulate an analytical construction of the entitlements in emissions allowances. To demonstrate the practical importance of such a construction, the chapter discusses a case study where uncertainty as to the nature of emissions entitlements has caused significant problems for market participants, and can negatively affect the success of the EU ETS as a tool of environmental policy.

Chapter 3 reinforces the urgency of the need for a comprehensive construction of emissions entitlements by exploring an area where continuing uncertainty regarding

156. An earlier version of this chapter appeared as Manea, *supra* n. 24.

the scope of regulatory intervention and the uses of emissions allowances – notably creating protectable and enforceable security interests over them – negatively affects the emissions market, and can thereby seriously impede the environmental success of the EU ETS. This area is represented by the commercial contracts which constitute the emissions market. It is argued that market participants need to be sufficiently well equipped – by way of carefully drafted contractual arrangements as well as regulatory clarification – to address both types of risk. In particular, it is posited that assistance should be provided to contracting parties in the shape of amendments to the standard form agreements used in emissions trading, given that the emissions market is more unpredictable than markets in ordinary tradable instruments, as it is susceptible to regulatory intervention. The chapter also argues for EU-level clarification as to the protectability and enforceability of security interests over emissions allowances. If the market is allowed to develop without resolution of this uncertainty, and the default of a trading entity occurs, this could lead to market destabilization. Overall, if contracts can effectively protect the economic interests of trading parties, these entities will be incentivized to continue participating in the emissions market, which will thus operate in fulfilment of the environmental goals of the EU ETS.

Chapter 4 covers the first part of the analytical framework put forward by the book, and focuses on common law property theory, given that the standard-form contracts which constitute the EU emissions market are predominantly subject to English law. In the case of emissions entitlements, it is argued that their judicial categorization as property in English law does not provide a conclusive answer to the key question posed by the book, namely how the scope and contents of these entitlements are shaped by the environmental goals of the EU ETS and also by other interests deemed worthy of legal protection. To address this question, the chapter compares and contrasts two leading strands of common law property theory. The chapter assesses the respective usefulness of the two strands in articulating a construction of new types of legal interests created by regulatory regimes – specifically emissions entitlements – which takes into account their public policy goals. The first strand is the view of property as a bundle of sticks, as pioneered by Hohfeld. The second strand is the view of property as a type of right with certain requisite characteristics which grant it its property character. In the context of commercially valuable property, these characteristics are identified as being exclusion, transfer and use. The analysis selects the latter view of property as formed of the three requisite elements as the more useful basis for examining established rights regimes and comparing them with emissions entitlements in the second part of the framework. The chapter further assesses the scope and limitations of the three constitutive elements of exclusion, transfer and use in respect of EU emissions entitlements. The limitations identified question the accuracy of simply categorizing emissions entitlements as private property in a generic manner, given that their characteristics are determined by the public policy goals pursued by the EU ETS. This dependency on the regulatory regime raises the possibility, to be explored further in the second part of the analytical framework, that, within the broad notion of private property, emissions entitlements are better viewed as a special category with a set of unique characteristics shaped by their regulatory origins.

Chapter 5 represents the second part of the analytical framework put forward by the book. It discusses the three rights regimes which have been identified as sufficiently comparable with emissions entitlements, namely intellectual property rights, spectrum rights – both of which are discussed in the context of the UK legal system – and EU milk quotas. The chapter employs the key elements of exclusion, transfer and use to analyse the contents of the aforementioned regimes, and then compares this analysis with that of the three elements as reflected in emissions entitlements. Out of the three rights regimes examined, emissions entitlements are most similar to milk quotas, albeit with some major exceptions. In the UK, courts have sought to clarify the treatment of milk quotas on an area-by-area basis, for instance as regards security interests or in cases of insolvency. The regulatory purpose of milk quotas and the flexibility in their characteristics according to the context in which they operate also translates to emissions entitlements. This finding supports the characterization of emissions entitlements as instrumental property, the new concept put forward by the book.

Chapter 6 assesses the findings of the book: a comprehensive analytical construction of emissions entitlements to ensure the continued viability of the EU ETS as a tool of environmental policy, and the evolutionary nature of property rights in a regulatory environment. The book puts forward the new category of instrumental property, to which emissions entitlements are said to belong. It is argued that instrumental property differs from the generic property categorization of emissions entitlements in English law as well as from the concept of regulatory property. It is therefore posited that the notion of instrumental property is better suited to accommodating the evolutionary nature of entitlements created to pursue regulatory goals. Specifically, the characteristics of instrumental property are determined by the regulatory goals of the regime which has created the rights, as well as by the particular contexts in which these rights operate. This flexibility has the potential to undermine market certainty and thereby the success of the environmental goals in the specific case of the EU ETS. The flexibility also has wider reverberations for the functionality of property, which, in a regulatory environment, becomes necessarily subordinated to extraneous interests.