LUISS Guido Carli
Dipartimento
di Giurisprudenza

Market-Based Mechanisms and Climate Change

EU and US Approaches

Caterina Mariotti

Working Paper
1/2015

LUISS
Academy

LUISS Guido Carli / Department of Law
Working paper n. 01-2015
Publication date: January 2015
Market-Based Mechanisms and Climate Change: EU and US Approaches

e-mail: mariottic@luiss.it
ISBN 978-88-6856-029-4

LUISS Academy is an imprint of
LUISS University Press – Pola s.r.l. a socio unico
Viale Pola 12, 00198 Roma
Tel. 06 85225485
e-mail lup@luiss.it
www.luissuniversitypress.it

MARKET-BASED MECHANISMS AND CLIMATE CHANGE: EU AND US APPROACHES

Caterina Mariotti

Abstract

A new international climate agreement for the post 2020 period is scheduled to be adopted at the 2015 Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). The most likely outcome is a hybrid system combining "bottom-up" and "top-down" aspects. The future climate regime is taking shape as a patchwork of different policies, including market-based mechanisms (such as emissions trading, carbon taxes, credit systems) as well as traditional command-and-control instruments. In this fragmented scenario, carbon markets are sprouting. As the establishment of an international carbon market appears implausible, linkage between carbon pricing systems has come to the fore as a key tool for ensuring a cost-effective and environmentally meaningful strategy.

Market-based mechanisms were experimented for the first time in the US, became a fundamental component of the international climate regime through the Kyoto Protocol flexibility mechanisms, are a cornerstone of EU climate policies and are at the core of many sub-federal initiatives in the US. A transnational linkage between the EU and US carbon markets could act as a catalyst for the development of a robust interlinked international system.

Existing legal literature on emissions trading tends to overlook the legal issues that arise from the complex regulatory structures that create carbon markets. The methodology employed in the present paper is based on the idea that emissions trading schemes can only be understood against the background of the legal context in which they operate. In light of this, this work analyses and compares the regulatory structures of EU and US emissions trading schemes in light of the respective legal orders, considers interactions between these systems and international law and suggests avenues for further research.

Section 1 sets the stage for this analysis, discussing the theoretical foundations and the first applications of market-based environmental regulation, as well as the Kyoto Protocol flexible mechanisms. Section 2 focuses on the EU ETS, devoting attention in particular to the evolution of the system and to the question of competence allocation. Section 3 gives an overview of the current emissions trading systems in the US and highlights some legal issues, with a particular focus on the constitutionality of linkages between sub-federal entities and foreign systems. Section 4 compares EU and US approaches to climate change strategies, with a reflection on their roles in the global scenario.

SECTION 1

1. Carbon Markets and the Post-2020 Scenario: the Importance of Transatlantic Cooperation

In December 2011, the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) adopted the Durban Platform for Enhanced Action, which launched a round of negotiations aimed at concluding "a protocol, another legal instrument or an agreed outcome with legal force" for the post 2020 period, to be adopted at the Paris COP in 2015.

The most likely outcome is a hybrid system combining "bottom-up" elements (like the "nationally determined contributions") and "top-down" aspects (with regard to monitoring, reporting and verification). The future climate regime is taking shape as a patchwork of different policies, combining market-based mechanisms (such as emissions trading, carbon taxes, emissions reduction credit systems) as well as traditional command-and-control instruments[1]. The picture is further complicated by the on-going UNFCCC negotiations about the Framework of Various Approaches and the New Market Mechanism and the uncertain future of the Kyoto flexible mechanisms[2].

With regard to market-based mechanisms, 39 national and 23 sub-national jurisdictions have implemented or are about to implement carbon pricing instruments. Only in 2013, 8 new carbon markets were established, with China hosting the second largest system in the world. Emissions trading schemes continue to develop steadily, despite the slow pace of international negotiations[3].

Against this fragmented scenario, coordination appears crucial. The role of transatlantic relations has been highlighted as capable of playing a fundamental role in ensuring an effective response to the climate change challenge[4]. This is even more true regarding market-based mechanisms. With regard to carbon markets, since the establishment of a global carbon market appears implausible, linkage has emerged as the main avenue for a cost-effective and environmentally meaningful system[5]. Linkage is generally defined as a mechanism that allows participants in an emissions trading scheme to use emissions units issued under another emissions trading scheme to meet compliance obligations[6]. A

---

[1] See D. BODANKSY, S. HOEDL, METCALF G.E., STAVINS R.N., *Facilitating Linkage of Heterogeneous Regional, National, and Sub-National Climate Policies Through a Future International Agreement*, Discussion Paper, Harvard Project on Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School, November 2014.

[2] D. CONWAY, *Blazing Trail or Flickering Flame? Market Mechanisms under the UNFCCC*, in G.VAN CALSTER, W. VANDENBERGHE , L. REINS, *Research Handbook on Climate Change Mitigation Law*, 2015.

[3] State and Trends of Carbon Pricing, World Bank Group, Washington 2014.

[4] C. BAKKER, F. FRANCIONI, *Introduction*, in C. BAKKER, F. FRANCIONI, *The EU, the US and Global Climate Governance,* 2014.

[5] A. MARCU, *The Role of Market Mechanisms in a Post-2020 Climate Change Agreement*, Center for European Policy Studies, 2014, S. BORGHESI, M. MONTINI, *The European Emissions Trading System: Flashing Lights, Dark Shadows and Future Prospects for Global ETS Cooperation*, in C. BAKKER, F. FRANCIONI, *supra* note 4, 2014.

[6] M. MEHLING, *Linking of Emissions Trading Schemes*, in D. FREESTONE, C. STRECK, *Legal Aspects of Carbon Trading: Kyoto, Copenhagen and Beyond*, 2009, p. 108.

transatlantic linkage «could represent the most relevant example of interacting blocks, linking the EU, as the largest existing ETS system, with the US, which has the broadest longstanding expertise in *cap-and-trade*»[7]. The birth and evolution of market-based mechanisms itself shows the relevance of EU-US relations: these instruments, born in the US, became the core of the international climate change regime through the Kyoto Protocol and a cornerstone of EU climate policies. While the US has distanced itself from the Kyoto agreement and has never adopted a federal legislation on climate change, sub-national entities have reacted to federal inaction through different initiatives, many of which are based on market mechanisms. The recent *Clean Power Plan*, a proposal by the Environmental Protection Agency (EPA) to cut carbon emissions from existing power plants, may constitute an incentive for further developments of sub-federal carbon markets[8].

2. Market-Based Mechanisms in Environmental Law

2.1. Definition, Economic Rationale and Theoretical Foundations

Two aspects can be distinguished in environmental discipline: the purpose (for example, avoiding adverse effects on health) and the instruments adopted to achieve the purpose[9]. Environmental instruments are generally grouped in two categories: command-and-control and market-based. Under a command-and-control regulation, uniform standards are applied to all relevant operators. Examples can be a quantitative limit on emissions of a given polluting substance, or the mandatory adoption of a certain technology[10]. This kind of discipline has been criticized because, within a category of entities subject to the same regulation, single operators can face very different costs to comply with the same standard[11]. These inefficiencies are overcome by market-based instruments: **«**Market-based instruments are regulations that encourage behaviour through market signals rather than through explicit directives regarding pollution control levels or methods. These policy instruments, such as tradable permits or pollution charges, are often described as "harnessing market forces" because if they are well designed and implemented, they encourage firms (and/or individuals) to undertake pollution control efforts that are in their own interests and that collectively meet policy goals**»**[12]. These instruments put a "price" on pollution: each operator will be able to decide whether to reduce their pollution level or to pay the corresponding price[13]. These instruments **«**allow any desired level of pollution clean-up to be realized at the

[7] S. BORGHESI, M. MONTINI, *The European Emissions Trading System*, *supra* note 5.
[8] *Clean Power Plant Proposed Rule*, EPA website, http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule.
[9] R.N. STAVINS, *Experience with Market-based Environmental Policy Instruments*, in K.G. MÄLER , J. VINCENT, *Handbook of Environmental Economics*, Amsterdam, 2003, p. 358.
[10] D.M. DRIESEN, R.W. ADLER, K.H. ENGEL, *Environmental Law: a Conceptual and Pragmatic Approach*, 2011, pp. 267-295.
[11] H.LATIN, *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning Regulatory Reforms*, in *Stanford Law Review*, 1985, vol. 37, pp. 1267-1269.
[12] R.N. STAVINS, *Experience with Market-based Environmental Policy Instruments*, *supra* note 9, p. 358.
[13] C. FISCHER, *Technical Innovation and Design Choices for Emissions Trading and Other Climate Policies*, in B. HANSÜRGENS, *Emissions Trading for Climate Policy. US and European Perspectives*, Cambridge, 2005, p. 40.

lowest overall cost to society, by providing incentives for the greatest reductions in pollution by those firms that an achieve these reductions most cheaply»[14].
Market-based mechanisms can be divided into taxes and emissions trading, which includes cap-and-trade and offset mechanisms[15]. In a cap-and-trade system, a cap on emissions is established and the total amount is divided into allowances, which are allocated to the regulated entities[16]. In an offset system, emissions reductions generate credits that can be used to offset other emissions[17].
The theoretical foundation of market-based mechanisms is generally identified in the Coase theorem, which framed the discussion on pollution control in terms of private rights[18]. According to this theorem, by identifying these rights and making them transferable, private negotiation will achieve the optimal allocation of resources[19]. Dales and other economists further developed this idea, creating the «academic and experimental platform that made emissions trading in practice possible»[20].

2.2. Emissions Trading in Practice

In the 50 years following the development of the Coase theorem, market-based mechanisms gradually attained a central role in the debate on environmental regulation[21]. The United States were the first to put the emissions trading theory into practice, and their pioneering effort proved later crucial for the adoption of Kyoto's flexibility mechanisms[22].
The first experiments were the *EPA Emissions Trading* (1977) and the *Lead Trading Program* (1985). However, it was the success of the 1990 *Acid Rain Program* to advance the popularity of emissions trading systems[23]. The Program satisfied or exceeded expectations at a lower cost than what estimated for a command-and-control system[24]. Among the reasons for this success, one can highlight, first, the fact that the cumbersome bureaucratic procedures that were in place for the EPA Emissions Trading System were avoided; second, an extremely stringent and accurate monitoring system was employed[25]. The first case where different States agreed to create a regional system was the *OTX NOx Budget Program* (OCTNBP)[26].

[14] R.N. STAVINS, *Experience with Market-based Environmental Policy Instruments*, *supra* note 9, pp. 358-359.
[15] According to the classification adopted by D.M. DRIESEN, R.W. ADLER, K.H. ENGEL, *supra* note 10, 2011, pp. 297-322
[16] C. WOLD, D. HUNTER, M. POWERS, *Climate Change and the Law*, 2009, p. 57.
[17] *Ibidem*.
[18] S. BOGOJEVIĆ, *Emissions Trading Schemes: Markets, States and Law*, 2013, pp. 45-46.
[19] R.H. COASE, *The Problem of Social Cost*, in *Journal of Law and Economics*, vol. 3, 1960, pp. 1-44. See also T. H. TIETENBERG, *Emissions Trading: Principles and Practice*, 2006.
[20] S. BOGOJEVIĆ, *Emissions Trading Schemes*, *supra* note 18, p. 359, A.D. ELLERMAN, F.J. CONVERY, C. DE PERTHUIS, *Pricing Carbon: the European Union Emissions Trading Scheme*, Cambridge, 2010, p. 9.
[21] S. BOGOJEVIĆ, *Emissions Trading Schemes*, *supra* note 18, p. 46.
[22] *Ivi*, p. 47.
[23] *Ibidem*.
[24] A.D. ELLERMAN, P.L. JOSKOW, D. HARRISON, *Emissions Trading in the U.S.: Experience, Lessons and Considerations for Greenhouse Gases*, prepared for the PEW Center on Global Climate Change, 2003, pp. 12-17.
[25] *Ivi*, p. 16; V. JACOMETTI, *Lo scambio di quote di emissione. Analisi di un nuovo strumento di tutela ambientale in prospettiva comparatistica*, Milano, 2010, pp. 71-72, 98-99.
[26] T. H. TIETENBERG, *supra* note 19, p. 13.

3. Market-Based Mechanisms against Climate Change: the Kyoto Experience

The flexible mechanisms of the Kyoto Protocol are the first example of the market-based logic applied in the fight against climate change. The US influenced the Kyoto Protocol arrangement in many ways. As shown above, its pioneering efforts and the success of the Acid Rain Program advanced the popularity of pollution pricing systems. Furthermore, during the negotiations of the Kyoto Protocol the US insisted on the inclusion of flexible mechanisms, putting economic efficiency at the core of the climate regime[27]. Moreover, many studies have investigated the lessons that can be drawn from the US experience and how they can contribute to the development of market-based climate strategies[28].

The Kyoto flexible mechanisms are the *Joint Implementation*, the *Clean Development Mechanism* and the *International Emissions Trading*. Under the *Joint Implementation* (JI), a Kyoto Annex I country can carry out an emissions reduction project in another Annex I country. The project generates Emission Reduction Units (ERUs) that can be used by the country that implemented the project to comply with its emissions reduction obligations. The *Clean Development Mechanism* allows an Annex I country to implement an emissions reduction project in a non-Annex I country. The former will be able to use the credits gained from the emissions reduction (*Certified Emissions Reduction* or CERs) for compliance purposes. Under the *International Emissions Trading* (IET), an Annex I country can purchase emissions allowances and emissions reduction credits from another Annex I country[29].

The functioning of these mechanisms has been marked by controversy, their ability to guarantee environmental integrity and to create actual incentives for pollution reduction has been questioned. Under the UNFCCC, with the negotiations on the New Market Mechanisms, the attention is now shifting towards designing mechanisms that involve whole sectors of the economy. While the future of the Kyoto mechanisms is uncertain, they undoubtedly constitute an important source of experience that will certainly be precious for future developments of market-based instruments[30].

---

[27] *Cfr.* C.P. CARLARNE, *Climate Change Law and Policy. EU and US Approaches*, Oxford 2010, pp. 276-277, V. JACOMETTI, *supra* note 25, pp. 145-146.

[28] See, for example: R. N. STAVINS, *Implications of the US experience with market- based environment strategies for future climate policies*, A. D. ELLERMAN, *US experience with emissions trading: lessons for CO2 emissions trading*, in B. HANSU□RGENS, *supra* note 13, A. D. ELLERMAN, P. L. JOSKOW, D. HARRISON, *Emissions Trading in the US*, *supra* note 24, M. W. GEHRING, C. STRECK, *Emissions Trading: Lessons from SOx and NOx Emissions Allowance and Credit Systems Legal Nature, Title, Transfer and Taxation of Emission Allowances and Credits*, in *Environmental Law Reporter*, 2005, vol. 35.

[29] For an overview of flexible mechanisms, see e.g. P. SANDS, J. PEEL, A.FABRA. R. MACKENZIE, *Principles of International Environmental Law*, Cambridge, 2012, P. BIRNIE, A. BOY, C. REDGWELL, *International Law and the Environment*, Oxford, 2009, F. YAMIN, J. DEPLEDGE, *The International Climate Change Regime. A Guide to Rules, Institutions and Procedures*, Cambridge, 2004, R.G. NEWELL, W.A. PIZER, D. RAIMI, *Carbon Markets 15 Years After Kyoto: Lessons Learned, New Challenges*, in *The Journal of Economic Perspectives*, 2013, M.MONTINI, *Il Protocollo di Kyoto e il Clean Development Mechanism: aspetti giuridici e istituzionali*, Milano, 2008, V. JACOMETTI, *supra* note 25, 2010.

[30] D. CONWAY, *Blazing Trail or Flickering Flame?*, *supra* note 2.

SECTION 2
THE EUROPEAN UNION EMISSIONS TRADING SYSTEM

1. The European Union Emissions Trading System

The European Union Emissions Trading System (EU ETS) was established by the Directive 2003/87/CE[31] and became operational in 2005. The EU ETS is a cap-and-trade system and it is considered a "cornerstone" of European climate policies. It is the first and largest international emissions trading system, operating in the 28 Member States, Iceland, Liechtenstein and Norway, and covering more than 11.000 installations[32]. The system was established "to contribute to fulfilling the commitments of the European Community and its Member States more effectively, through an efficient European market in greenhouse gas emission allowances, with the least possible diminution of economic development and employment"[33]. The European Union originally opposed market-based mechanisms during the negotiations of the Kyoto Protocol, and has changed its position from "laggard" to "leader" in emissions trading in only a few years[34].
The EU ETS has until now gone through three phases of operation: Phase I, from 2005 to 2007; Phase II, from 2008 to 2012; Phase III, from 2013 to 2020. The first two phases were governed by Directive 2003/87/CE; an important revision for Phase III was carried out with Directive 2009/29/CE[35]. An examination of the most relevant changes is warranted.

1.1. Cap-Setting

In the first two phases, the cap was not established at the European level. Every State decided on how many allowances to allocate and on their distribution to the relevant operators. This was done through National Allocation Plans, which were reviewed by the Commission and could be rejected for failure to comply with the EU ETS Directive or EU rules on competition and state aid law[36]. This system, however, gave rise to several dysfunctions.

---

[31] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC, Official Journal L 275, 25/10/2003, P. 0032 – 0046.
[32] *The EU Emissions Trading System*, European Commission website, http://ec.europa.eu/clima/policies/ets/index_en.htm
[33] Directive 2003/87/CE, Preamble, par. 5.
[34] See J. B. SKJÆRSETH, J. WETTESTAD, *The Origin, Evolution and Consequences of the EU Emissions Trading System*, in *Global Environmental Politics*, 2009, vol. 9, p. 102.
[35] Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, Official Journal L 140, 5.6.2009, P. 63–87.
[36] *EU Emissions Trading System (EU ETS). National Allocation Plans*. European Commission website, http://ec.europa.eu/clima/policies/ets/pre2013/nap/index_en.htm, S. BOGOJEVIĆ, *The EU ETS Directive Revised: Yet Another Stepping Stone*, in *Environmental Law Review*, 2009, vol. 11, p. 283.

First, during the first Phase the NAPs were characterized by low ambition and were in many cases based on inflated projections[37]. This generated an over-allocation of allowances with a consequent price collapse[38]. For Phase II, the Commission imposed more stringent limits thanks to the use of objective projections based on 2005 verified emissions[39]. This was not enough, however, to avoid the over-allocation problem, due to the economic crisis and the consequent decrease in emissions and allowances demand[40]. Other criticisms concerned the complexity and low transparency of the Plans[41], the risk that differences among Plans could distort competition[42], and the fact that a centralized system could be more stable and reliable[43]. For Phase III, it was decided to have a centralized cap set by the European Commission.

1.2. Allocation Method

During the first two Phases, allowances were almost exclusively allocated for free through grandfathering (i.e., on the basis of historic emission levels)[44]. This allocation method was criticized under many aspects. The compatibility of this system with the "polluter pays principle" has been questioned[45]. Another controversial issue concerned "windfall profits", a phenomenon concerning mainly the electricity-producing sector, which is able to "integrate the value of used emission allowances which were allocated free of charge into the price of electricity"[46].
In Phase III, the default allocation method has become auctioning. Businesses will have to buy an increasing proportion of allowances through auctions, with a view to eliminating free allocation by 2027 except for sectors exposed to leakage (e.g., relocation of the activity in third countries)[47].

1.3. Verification and Monitoring

In Phases I and II, the Member States were responsible for verification and monitoring procedures[48]. The European Commission had tried to attain uniform controls across the

---

[37] C. EGENHOFER, *The Making of the EU Emissions Trading Scheme: Status, Prospects and Implications for Business,* in *European Management Journal*, 2007, vol. 25, p. 456, V. JACOMETTI, *supra* note 25, p. 264.
[38] K. CAPOOR, P. AMBROSI, *State and Trends of the Carbon Market 2007*, World Bank, pp. 12-13.
[39] C. EGENHOFER, *The Making of the EU Emissions Trading Scheme*, *supra* note 37, p. 458.
[40] A. VLACHOU, *The European Union's Emissions Trading System*, in *Cambridge Journal of Economics*, 2013, p. 8.
[41] A. VLACHOU, *The European Union's Emissions Trading System*, *supra* note 40, pp. 4-5, C. EGENHOFER, *The Making of the EU Emissions Trading Scheme*, *supra* note 37, pp. 455-456.
[42] A.D. ELLERMAN, F.J. CONVERY, C. DE PERTHIUS, *Pricing Carbon*, *supra* note 20, p. 34.
[43] S. BOGOJEVIĆ, *The EU ETS Revised*, *supra* note 36, pp. 281-282.
[44] *EU ETS 2005-2012*, European Commission website, http://ec.europa.eu/clima/policies/ets/pre2013/index_en.htm
[45] J. NASH, *Too Much Market? Conflict Between Tradable Pollution Allowances and the "Polluter Pays" Principle*, in *Harvard Environmental Law Review*, 2000, vol. 24, p. 505.
[46] Opinion of Advocate General Kokott, delivered on 21 March 2013, *Iberdrola, SA and Others v Administración del Estado*, joined Cases C-566/11, C-567/11, C-580/11, C-591/11, C-620/11 and C-640/11, para. 2.
[47] *The EU Emissions Trading System (EU ETS)*, European Commission website http://ec.europa.eu/clima/policies/ets/index_en.htm, V. JACOMETTI, *supra* note 25.
[48] Council Directive (EC) 2003/87, above n. 1, Articles 14-15.

Member States adopting Guidelines[49]. In spite of this, notable differences between Member States for monitoring and verification procedures remained, contributing to the complexity and instability of the system[50]. The EU has thus opted for centralization of this aspect through the adoption of regulations.
Moreover, for Phase III the Registries system has been revised. Registries are "standardised electronic databases ensuring the accurate accounting of the issuance, holding, transfer and cancellation of emission allowances"[51]. Before the reform, every State had its own national registry and the registries were linked through the *Community Independent Transaction Log* (CITL). The 2009 revision has centralized the system, and the national registries have been substituted by a single European Registry[52].

2. Centralization, Decentralization and the Subsidiarity Principle

The EU ETS system was originally very decentralized and key decisions were left to Member States[53]. In Phase III, as explained above, many aspects have been centralized. The compatibility of these changes with the subsidiarity principle has been debated.
According to Lenaerts, an emissions trading scheme is itself an expression of the subsidiarity principle. This position is based on the idea that in such a system the role of the government is marginal, as it is limited to setting a cap and a permit system and monitoring emissions[54].
Some authors have seen the centralization brought about by the revision as a "Commission *coup*"[55] that gave rise to a radical harmonization[56]. De Cendra De Larragán advanced several doubts on the conformity of the amendments with the subsidiarity principle. The author has argued that the cap centralization was not justified by the problems of Phase I, which was conceived as an experimental phase[57].
Other authors have given a more nuanced interpretation of the 2009 reform, highlighting that it included aspects of decentralization as well, for example with regard to the management of auctions. According to this view, the reform determined a balanced power allocation between the Commission and the Member States[58].

---

[49] S. BOGOJEVIĆ, *The EU ETS Revised*, *supra* note 36, p. 282.
[50] *Ibidem*, V. JACOMETTI, *supra* note 25, p. 266.
[51] *Q&A on the Revised EU Emissions Trading System*, http://europa.eu/rapid/press-release_MEMO-08-796_en.htm.
[52] See *Union Registry*, European Commission website, http://ec.europa.eu/clima/policies/ets/registry/index_en.htm
[53] J.KRUGER, W.E.OATES, W.A. PIZER, *Decentralization in the EU Emissions Trading Scheme and Lessons for Global Policy*, in *Review of Environmental Economics and Policy*, 2007, vol. 1, pp. 112-133.
[54] K. LENAERTS, *The Principle of Subsidiarity and the Environment in the European Union: Keeping the Balance of Federalism*, in *Fordham International Law Journal*, 1993, vol. 17, pp. 892-893.
[55] J. WETTESTAD, *Revising EU Emissions Trading: A "Requested Revolution"?*, The European Union and the Fight against Global Climate Change Lecture Series, 2008.
[56] DE CENDRA DE LARRAGÁN, *Too Much Harmonization? An Analysis of the Commission's Proposal to Amend the EU ETS from the Perspective of Legal Principles*, in M. FAURE, M. PEETERS, *Climate Change and European Emissions Trading: Lessons for Theory and Practice*, 2008, pp. 53-84.
[57] *Ibidem*.
[58] S. BOGOJEVIĆ, *The EU ETS Revised*, *supra* note 36, p. 76.

3. EU ETS Case-Law

The EU ETS has given rise to over 40 judicial proceedings before European judges only in its first 4 years of operation, and is the most frequently litigated environmental instrument in EU law[59]. The case-law includes challenges to Commission's Decisions on the NAPs under art. 263 TFEU, requests for preliminary rulings under art. 267 TFEU and infringement procedures under art. 258. The purpose of this part is to highlight some fundamental issues arisen in the EU ETS judgments.

The case law shows first of all that at the core of EU ETS litigation lies the question of competence allocation: it has been argued that European courts frame EU ETS questions in constitutional terms[60]. For example, in the cases *Estonia v. Commission*[61] and *Poland v. Commission*[62], the Member States challenged the Commission's decision to reject their National Allocation Plans, by which Member States decided on allowance allocation in Phases I and II. While the Commission argued for a teleological interpretation of the Directive which would take into account the impact of the measures on the functioning of the market, both the General Court and the Court of Justice strictly focused on whether regulatory competence was allocated in accordance with EU law, refusing to take into account the possible negative effects on the market[63].

Another point concerns the link between the decisions and the functioning of the European carbon market. For example, the market reacted immediately to the judgments on the Estonian and Polish NAPs. Van Zeben has argued in this respect that it is impossible to draw a line between the Court's judgments and the carbon market[64]. More generally, Van Zeben and Dari-Mattiacci have highlighted the link between regulatory and market uncertainty, a connection that appears particularly strong for "artificial markets" like the EU ETS[65].

A further issue concerns the relationship between the case-law and the 2009 revision. Many authors have argued that the centralization of the cap was mainly due to the large number of controversies that NAPs have generated. This change is expected to reduce litigation and the consequent market instability[66]. Other scholars, however, have underlined that a vast array

---

[59] N.S. GHALEIGH, *Two Stories About EU Climate Change Law and Policy*, in *Theoretical Inquiries in Law*, vol. 14, 2013, p. 70 *et seq.*, N.S.GHALEIGH, *Emissions Trading Before the European Court of Justice: Market Making in Luxembourg*, in D. FREESTONE, C. STRECK, *supra* note 6, p. 374.

[60] S. BOGOJEVIĆ, *EU Climate change litigation: All Quiet on the Luxembourgian Front?*, in G. VAN CALSTER, W. VANDENBERGHE, L. REINS, *Research Handbook on Climate Change Mitigation Law*, 2015.

[61] Judgment of the Court of First Instance (Seventh Chamber) of 23 September 2009, *Republic of Estonia v Commission of the European Communities*, case T-263/07; Judgment of the Court (Second Chamber) of 29 March 2012, *European Commission v Republic of Estonia*, Case C-505/09 P.

[62] Judgment of the Court of First Instance (Second Chamber) of 23 September 2009, *Republic of Poland v Commission of the European Communities*, Case T-183/07; Judgment of the Court (Second Chamber) of 29 March 2012 *European Commission v Republic of Poland*, Case C-504/09 P.

[63] S. BOGOJEVIĆ, *Emissions Trading Schemes*, *supra* note 18, pp. 304-313, J. VAN ZEBEN, *Case Note. Respective Powers of the European Member States and Commission Regarding Emissions Trading and Allowance Allocation*, in *Environmental Law Review*, 2010, vol. 12, p. 222.

[64] J. VAN ZEBEN, *Case Note*, *supra* note 63, pp. 222-224.

[65] G. DARI-MATTIACCI, J. VAN ZEBEN, *Legal and Market Uncertainty in Market-Based Instruments: The Case of the EU ETS*, in *N.Y.U. Environmental Law Journal*, 2012, vol. 19, pp. 415-453.

[66] N. VAN AKEN, M PAQUES, *The 'Emissions Trading Scheme' case-law: some new paths for a better European environmental protection?,* in M. FAURE, M. PEETERS, *supra* note 56, p. 116, S. BOGOJEVIĆ *Emissions Trading*

of issues which can give rise to litigation remains: the allocation to sectors exposed to risk of leakage; transitional free allocations for modernization of electricity generation; national implementation measures[67].

Another problematic aspect concerns access to justice. Until now, all actions for annulment presented by private operators have been dismissed for failure to comply with art. 263(4) standing requirements. The preliminary reference procedure is therefore the only way for private operators to access European courts. Views on future developments of this limitation of access to justice differ: De Cendra De Larragán[68] has suggested that EU courts might alter this pattern, and compensate at least in part for the limited participation of private parties in the decision-making process; Bogojević[69] interprets this attitude as an example of "judicial subsidiarity", that is, the objective of reducing interventions by the Court of Justice.

Schemes, *supra* note 18, pp. 327-328 S. BOGOJEVIĆ, *The EU ETS Directive Revised*, *supra* note 36, pp. 281-283, N. S. GHALEIGH, *Emissions Trading*, *supra* note 59, pp. 377-378.

[67] G. DARI-MATTIACCI, J. VAN ZEBEN, *supra* note 65, p. 448.

[68] DE CENDRA DE LARRAGÁN, *Distributional Choices in EU Climate Change Law and Policy*, 2010.

[69] S. BOGOJEVIĆ, *EU Climate change litigation: All Quiet on the Luxembourgian Front?*, *supra* note 60.

SECTION 3
CLIMATE CHANGE AND MARKET MECHANISMS IN THE US

1. Federal Policy on Climate Change

The US has no comprehensive federal legislation on climate change[70]. The Obama Administration has recently adopted measures as a reaction to the inaction of the Congress, the most relevant of which is the Clean Power Plan, proposed by the Environmental Protection Agency (EPA) in June 2014.
At the international level, the US is a party to the UNFCCC but not to the Kyoto Protocol, despite having actively taken part in its negotiations[71]. During the negotiations, the Senate adopted the *Byrd-Hagel* resolution, which stated that the US would not ratify a Treaty that did not impose emissions reduction obligations also upon developing countries[72]. In September 1998, President Clinton nevertheless signed the Protocol. In March 2001, President Bush expressed his opposition to the treaty in a famous letter, and 14 days later the EPA announced that the US would repudiate the Protocol[73].
The reaction to the federal void on climate change came from sub-national entities: the US is a patchwork of regional, state and local initiatives to combat climate change. Many of them are based on market-based systems: in order to understand the possibilities of transatlantic cooperation in the field of carbon markets, an overview of the schemes and of the legal issues involved is warranted.

2. Sub-Federal Market-Based Initiatives: RGGI, WCI and the Californian System

The first market-based program on carbon emissions in the US is the Regional Greenhouse Gas Initiative, based on a cap-and-trade system[74]. It includes 9 States and provides for a multi-state cap on CO2 emissions from power plants, with a view to attaining a 10% emissions reduction by 2018[75]. Allowances are allocated mainly through auctioning: it has been suggested that the market dysfunctions in the EU ETS caused by grandfathering made auctioning politically viable[76]. RGGI has been criticized under many aspects. It has been argued that its emission reduction objectives were too modest, and, like the EU ETS, the program was plagued by over-allocation[77]. Some States generated controversy by using the

[70] R. HUFFMAN, J. WEISGALL, *Climate Change and the States: Constitutional Issues Arising from State Climate Protection Leadership*, in *Sustainable Development Law and Policy*, 2008, vol. 8, pp. 7-8.
[71] C.P. CARLARNE, *Climate Change Law and Policy*, *supra* note 27, p. 15, pp. 35-36, M. LISOWSKI, *Playing the Two-Level Game: US President Bush's Decision to Repudiate the Kyoto Protocol*, in *Environmental Politics*, 2002, vol.11, p. 101.
[72] Sense of the Senate Resolution n. 98 (105th), see C. WOLD, D. HUNTER, M. POWERS, *supra* note 16, p. 478.
[73] M. LISOWSKI, *supra* note 71, p. 101.
[74] P. HIBBARD, S. TIERNEY, A. OKIE, P. DARLING, *The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States*, 2011, Analysis Group.
[75] *Multi-State Climate Initiatives. Regional Greenhouse Gas Initiative*, Center for Climate and Energy Solutions.
[76] B.G. RABE, *The Aversion to Direct Cost Imposition: Selecting Climate Policy Tools in the United States*, in *Governance: an International Journal of Policy, Administration, and Institutions*, 2010, vol. 23, pp. 597-598.
[77] K.LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US: Legal Issues*, in D. FREESTONE, C. STRECK, *supra* note 6, pp. 392-393.

revenues from auctions to ease budget deficits, and in 2011 New Jersey abandoned the program[78]. RGGI has at the same time received positive evaluations, an example of which is the 2011 study by Analysis Group, which concluded that RGGI brought about economic benefits to the participating States and to consumers[79]. What is undisputable is that this experiment constitutes a precious source of information on the functioning of multi-State emissions trading systems[80].

The Western Climate Initiative (WCI) is "a collaboration of jurisdictions working together to identify, evaluate, and implement emission-trading programs to mitigate the impacts of climate change at a sub-national level"[81]. Its current participants are British Columbia, California and Quebec. WCI lost most of its participants in 2011: had the program maintained all its members, the initiative would have given rise to the largest *cap-and-trade* system in the world[82]. In 2008, the WCI released the *Design Recommendations for a Cap-and-Trade Program* to offer States a model for the development of their programs[83]. Based on the recommendations, the WCI Partners released the *Design for the WCI Regional Program*, a comprehensive strategy designed to reduce greenhouse gas emissions, stimulate development of clean-energy technologies, and create green jobs[84]. The WCI is in some aspects different from RGGI. Unlike RGGI, it covers multiple sectors. This makes monitoring more difficult for the WCI, as RGGI can count on very accurate monitoring systems (CEMS) which are not available for many of the sectors covered by the WCI[85]. Moreover, while RGGI only involves US States, the WCI includes US and Canadian entities[86].

The Californian cap-and-trade system became operational in January 2013. Based on the amount of emissions covered, it is second in size only to the EU ETS[87]. The purpose of the program is to reduce greenhouse gas emissions of 16% between 2013 and 2020[88]. This program is part of a broader normative framework that sees California as a pioneer State on climate change policies[89]. With regard to its features, the program covers electric utilities, large industrial facilities and, from 2015 on, distributors of transportation, natural gas and other fuels. This wide scope makes it the first multi-sector cap-and-trade program in the United States[90]. The allocation method is partly auctioning and partly free allocation, and the

---

[78] B. HUBER, *How Did RGGI Do It?*, in *Ecology Law Quarterly*, 2013, vol. 40, p.65.
[79] HIBBARD, S. TIERNEY, A. OKIE, P. DARLING, *supra* note 74.
[80] J.L.RAMSEUR, *The Regional Greenhouse Gas Initiative: Lessons Learned and Issues for Policymakers, Congressional Research Service*, p. 16.
[81] *Multi-State Climate Initiatives. Western Climate Initiative*, Center for Climate and Energy Solutions.
[82] B.V. RICE, *The Triumph of the Commons: An Analysis of Enforcement Problems and Solutions in the Western Climate Initiative*, in *Pacific McGeorge Global Business and Development Law Journal*, 2009-2010, vol. 22, pp. 402-403.
[83] D. WARREN, S. TOMASHEFSKY, *The Western Climate Initiative*, in *State and Local Government Review*, 2009, p. 56.
[84] *Western Climate Initiative* website; *Multi-State Climate Initiatives. Western Climate Initiative*, Center for Climate and Energy Solutions.
[85] B. RICE, *The "Triumph" of the Commons*, *supra* note 82, pp. 406-408.
[86] *Ibidem*.
[87] *California Cap-and-Trade*, Center for Climate and Energy Solutions.
[88] *Ibidem*.
[89] C.P. CARLARNE, *Climate Change Law and Policy*, *supra* note 27.
[90] *California Cap-and-Trade*, Center for Climate and Energy Solutions.

system foresees the possibility of linking with other emissions trading schemes. In January 2014, the linkage between the Californian system and the Quebec program became operational, with the ultimate goal of linking with all the other WCI participants[91].

3. Legal Issues: Federalism and Sub-Federal Initiatives

The compatibility of the above-mentioned sub-federal initiatives with the US Constitution and the system of federalism has been widely debated. This section analyses issues arising from *pre-emption*, *foreign affairs*, the *Compact Clause* and the *Commerce Clause*.

First of all, the US Constitution contains, in Article 6, the *Supremacy Clause*, establishing that the Constitution and federal laws are "the supreme law of the land". This provision is the basis for the doctrine of *federal preemption*, according to which in some cases federal law "pre-empts" state law[92]. Pre-emption operates in the following instances: when federal law explicitly pre-empts state law addressing the same subject; when federal law "occupies the field" (*field pre-emption*); when a federal law and a state law are in conflict, which occurs either when it would not be possible to comply with both, or when state law is an obstacle to achieving the federal objectives (*conflict pre-emption*)[93]. With regard to climate change, the issue will certainly become more relevant when a federal legislation will be adopted[94].

Second, the US Constitution assigns exclusive competence on foreign affairs to the federal government. With regard to climate change, the issue arose as to whether sub-federal climate initiatives could interfere with federal foreign policy on climate change[95]. The Supreme Court has made it clear that a state law can be considered as interfering with foreign affairs, and therefore be declared unconstitutional, even if no action was taken by the federal government[96]. According to some authors, the fact that the federal government is involved in international negotiations on climate change and the global nature of the problem automatically make any state action unconstitutional[97]. Others, on the contrary, believe that sub-federal action could increase the US credibility in the international arena[98].

A third issue concerns the *Compact Clause*, which states that "No State shall, without the consent of the Congress, [...] enter into any Agreement or Compact with another State, or with a foreign Power"[99]. To identify whether an agreement between States, like a cap-and-trade system, amounts to a "compact", the case-law has identified 5 "indicia": reciprocity or mutual attribution of benefits; actual cooperation in the development of the program; creation of a regional body; the fact that implementation by one State is conditional upon action by the

---

[91] *Ibidem*.

[92] A. ARENA, *Il principio della preemption nel diritto dell'Unione europea. Esercizio delle competenze e ricognizione delle antinomie tra diritto derivato e diritto nazionale*, Napoli, 2013, p. 13, and R. HUFFMAN, J. WEISGALL, *supra* note 70, p.9.

[93] K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US: Legal Issues,* in D. FREESTONE, C. STRECK, *supra* note 6, pp. 406-408.

[94] *Ibidem*.

[95] *Ivi*, pp. 408-409, Constitution of the United States, art. 1 and 8.

[96] *Ivi* and *Foreign Affairs Pre-emption and State Regulation of Greenhouse Gas Emissions*, in *Harvard Law Review*, 2006, vol. 119, p. 1894 ss.

[97] *Ibidem*.

[98] *Ibidem*.

[99] Constitution of the United States, Article 1, Section 10.

other State; restrictions on the possibility of a State to modify or abrogate its law unilaterally (thus exiting the agreement)[100]. Even if, in light of these criteria, the agreement is considered to be a "compact", Congressional consent is not automatically required. US judges apply a "functional test": it is necessary to involve the Congress only if the compact would lead to «the increase of the political power or influence of the States affected, and thus encroach [...] upon the full and free exercise of Federal authority»[101]. Until now, however, no inter-state pact has ever been declared invalid under the Compact clause. The States participating in the above-mentioned regional *cap-and-trade* regional programs did not seek Congressional consent[102]. Opinions differ on whether the agreements at issue can be considered "compacts"[103]. Even if they were considered compacts, Smith believes that Congressional consent would not be required, as the program deals with an issue that the federal government has expressly decided not to address[104].

Finally, under the *Commerce clause*, «The Congress shall have Power to [...] regulate Commerce with foreign Nations, and among the several States»[105]. According to an established interpretation, this clause contains also an implicit limit on States' authority, known as the *Dormant Commerce Clause*[106], which prohibits States from taking actions that constitute obstacles to inter-state commerce. Even a law that does not contain a direct discrimination, like the emissions trading schemes at issue, can be considered unconstitutional under the *Commerce Clause*[107]. In that case, a balancing test is applied: the law will be considered unconstitutional if the obstacle it creates to inter-state commerce outweighs the state benefits generated[108]. An issue that could generate problems under the *Dormant Commerce Clause* concerns measures adopted to combat leakage, for example a restriction on electricity imports from States not participating in a cap-and-trade program[109].

---

[100] K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US*, *supra* note 93, p. 410, R. HUFFMAN, J. WEISGALL, *supra* note 70, pp. 10-11.

[101] *Virginia v. Tennessee*, 148 U.S. 503 (1893), p. 520, K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US*, *supra* note 93, p. 410 and *The Compact Clause and the Regional Greenhouse Gas Initiative*, in *Harvard Law Review*, vol. 120, 2007, pp. 1960-1962.

[102] K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US*, *supra* note 93, p. 410.

[103] Some authors believe it is unlikely that RGGI would be considered a compact: see R. HUFFMAN, J. WEISGALL, *supra* note 70, pp. 10-11, *The Compact Clause and the Regional Greenhouse Gas Initiative*, *supra* note 101, pp. 1972-1976, D. A. FARBER, *Climate Change, Federalism, and the Constitution*, in *Arizona Law Review*, vol. 50, 2008,p. 908. Others believe RGGI could be qualified as a compact, see: K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US*, *supra* note 93, p. 410.

[104] The authors refers in particular to *US Steel Corp v. Multistate Tax Comm'n*, 434 U.S. 452 (1978). M. S. SMITH, *Murky Precedent Meets Hazy Air: the Compact Clause and the Regional Greenhouse Gas Initiative*, in *Environmental Affairs Law Review*, 2007, vol. 34, pp. 408-411, see K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US*, *supra* note 93, pp. 410-411.

[105] Constitution of the United States, art. 1, Section 8.

[106] *United Haluers Ass'n v. Oneida-Herkimer Solid Waste Mgmt. Auth*, 550 US 330, (2007); see e.g. R. HUFFMAN, J. WEISGALL, *supra* note 70, pp. 9-10.

[107] K. LAMOTTE, D. WILLIAMSON, L. HOPKINS, *Emissions Trading in the US*, *supra* note 93, p. 412.

[108] *Ivi*.

[109] W. FUNK, *Constitutional Implications of Regional CO2 Cap-and-Trade Programs: The Northeast Regional Greenhouse Gas Initiative as a Case in Point*, in *UCLA Journal of Environmental Law and Policy*, 2009, vol. 27, p. 363.

3.5. Sub-federal Cap-and-Trade and Transnational Linkages: Constitutional Issues

Given the focus of the present paper, it is necessary to discuss the constitutional issues analysed above in relation to the linkage of sub-federal cap-and-trade systems with foreign systems. To this end, some relevant aspects of US constitutional case-law will be highlighted.

With regard to the *Supremacy Clause*, since there is no federal legislation that expressly pre-empts linkage of US initiatives with foreign programs, no issue arises as regards express pre-emption[110]. The same goes for field pre-emption[111]. With regard to conflict pre-emption, the relevant doctrine is the *implied foreign affairs pre-emption*, discussed in two Supreme Court cases. The *Crobsy v. National Foreign Trade Council*[112] case concerned a Massachusetts law prohibiting state entities from purchasing goods and services from companies that had trade relations with Burma[113]. The Supreme Court declared the law unconstitutional stating that, when a federal policy on foreign affairs has been adopted, States cannot adopt measures that reduce the US negotiating power (the "bargaining chips") of the President at the international level, diminishing its economic and diplomatic influence[114]: «We need not get into any general consideration of limits of state action affecting foreign affairs to realize that the President's maximum power to persuade rests on his capacity to bargain for the benefits of access to the entire national economy without exception for enclaves fenced off willy-nilly by inconsistent political tactics»[115].

In *American Insurance Association v. Garamendi*[116], what established in *Crosby* was extended to a subject which was not regulated by a federal law, but only by President's executive agreements[117]. In *Garamendi* the Supreme Court ruled on a Californian law requiring insurers to disclose information about all policies sold in Europe between 1920 and 1945, to ensure payment of policies belonging to Holocaust victims[118]. This law was declared invalid because of the executive agreements signed with Austria, France and Germany, which imposed less burdensome conditions on insurers[119]. As the basis of the declaration of invalidity is a conflict between a Californian law and Presidential policy, it is possible to conclude that *Garamendi* is an example of conflict pre-emption, although its classification is debated[120]. It is important to note that, based on *Garamendi*, a law can be pre-empted because of a mere executive conduct, and absent a federal law or a formal executive order[121].

---

[110] H. CHANG, *Foreign Affairs Federalism: The Legality of California's Link With the European Union Emissions Trading Scheme*, in *Environmental Law Reporter*, 2007, vol. 37, p. 10774.

[111] S. WELTON, *Stata Dynamysm, Federal Constraints: Possibl Constitutional Hurdles to Cross-Border Cap-and-Trade*, in *Natural Resources and Environment*, 2012, vol. 27, pp. 37-38.

[112] 530 U.S. 363 (2000).

[113] R. HUFFMAN, J. WEISGALL, *supra* note 70, p. 12.

[114] H. CHANG, *supra* note 110, p. 10775, S. WELTON, *supra* note 111, p. 38, *Crosby*, p. 377, R. HUFFMAN, J. WEISGALL, *supra* note 70, p. 12.

[115] *Crosby*, p. 381.

[116] 539 U.S. 396 (2003).

[117] R. HUFFMAN, J. WEISGALL, *Climate Change and the States*, *supra* note 70, p. 12.

[118] *Ivi*, p. 13.

[119] *Foreign Affairs Pre-emption and State Regulation of Greenhouse Gas Emissions*, *supra* note 96, p. 1879, H. CHANG, *supra* note 110, p. 10775.

[120] See *Foreign Affairs Preemption and State Regulation of Greenhouse Gas Emissions, supra* note 96, p. 1880, S. WELTON, *supra* note 111, p. 38, H. CHANG, *supra* note 110, p. 10775.

[121] H. CHANG, *supra* note 110, p. 38.

To argue for the invalidity of a transnational linkage under the conflict pre-emption, one could point to the position expressed by the Congress (in particular in the *Byrd-Hagel* resolution) and to the executive attitude during international negotiations[122]. However, in two rulings it was stated that even under the Bush Administration the government considered state initiatives as an important part of US policy on climate change[123]. Moreover, when the international community criticized the US inertia on the issue, the government used the sub-federal initiatives as evidence of the US involvement in the fight against climate change[124]. President Obama openly praised the RGGI initiative[125]. On the other hand, on the basis of the fact that the United States is involved in international negotiations on the climate regime, the judges could consider an international linkage unconstitutional under the "bargaining chip" doctrine. The conclusion is that the outcome of a controversy on these issues would be uncertain. The current Administration tends to promote sub-federal initiatives, making it more difficult to demonstrate a conflict. However, things might change with a different Administration[126].

Second, it is necessary to consider the *dormant foreign affairs pre-emption* doctrine, on which the decision *Zschernig v. Miller*[127] is based. In this ruling, the Supreme Court struck down an Oregon law which prohibited inheritance by a non-resident alien unless certain conditions were met by the alien's country[128]. The statute was declared unconstitutional because of its "direct effect" on foreign affairs: «The present Oregon law [...] has a direct impact upon foreign relations»[129]. The Court stated here that a state law can be pre-empted under the dormant foreign affairs pre-emption even absent any federal policy on the matter and absent a conflict between the state measure and a federal policy[130]. The scope of this doctrine remains uncertain, and many diverging interpretations have been put forward. In *Garamendi* the Court did not rely on *Zschernig*; however in *Garamendi* Justice Ginsburg, in her dissenting opinion, gave this reading of *Zschernig*: «The notion of "dormant foreign affairs pre-emption" with which Zschernig is associated resonates most audibly when a state action reflect[s] a state policy critical of foreign governments and involve[s] 'sitting in judgment' on them»[131]. Some lower courts adopted the "sit in judgment" test, whereas other Courts believe that the main point of the judgment is the Court's statement that the law «has a direct impact upon foreign relations and may well adversely affect the power of the central government to deal with those problems»[132]. Given this uncertain picture, a Court called to consider the validity of a transnational linkage under the *dormant foreign affairs pre-emption* would have a wide margin of freedom in interpreting the doctrine[133].

---

[122] S. WELTON, *supra* note 111, p. 38.
[123] *Ibidem*.
[124] H. CHANG, *supra* note 110, p. 10776.
[125] S. WELTON, *supra* note 111, p. 38.
[126] *Ibidem*.
[127] 389 U.S. 429 (1968).
[128] S. WELTON, *supra* note 111, p. 38.
[129] *Zschernig*, p. 441.
[130] S. WELTON, *supra* note 111, p. 38, H. CHANG, *supra* note 110, p. 10778.
[131] S. WELTON, *supra* note 111, p. 39.
[132] H. CHANG, *supra* note 110, p. 10778, S. WELTON, *supra* note 111, p. 39.
[133] R. HUFFMAN, J. WEISGALL, *supra* note 70, p. 11.

Furthermore, the *Compact Clause* implications should be discussed. Huffman and Weisgall believe that a transnational linkage, in order to function properly, would need to have characteristics of enforceability and stability such that it would be difficult not to label such an arrangement a "compact"[134]. Welton suggests that the *Compact Clause* could be interpreted more strictly when agreements with foreign countries are at issue, because of their potential impact on foreign affairs[135]. The case-law seems to imply that «certain additional protections apply to foreign compacts»[136], although no foreign compact has ever been declared unconstitutional under this doctrine.

A further aspect to consider is the *dormant foreign Commerce Clause*, a subset of the *dormant Commerce Clause*[137] which limits interference with international commerce. In *Japan Line, Ltd. v. County of Los Angeles*[138], the Supreme Court applied the *dormant foreign Commerce Clause* to strike down a law that imposed a tax on the shipping containers of a Japanese company whose own government imposed similar taxes. The rationale was that this generated a double imposition and prevented the US government from speaking with "one voice" on international trade[139]. Transnational emission trading linkages could raise issues under the "one voice" test. In the case *Barclays Bank PLC v. Franchise Tax Board*[140], the Supreme Court «indicated that it will not necessarily invalidate state policies that have even tacit congressional approval»[141], although the meaning of this decision for the *dormant foreign Commerce Clause* doctrine is uncertain[142]. In any case, there have not been such forms of approval by the Congress towards sub-national emissions trading[143].

In conclusion, it should be pointed out that the case-law on these issues is not clear, and it is therefore not possible to foresee the outcome of possible future cases. According to Welton, the *dormant foreign affairs pre-emption*, the *dormant foreign Commerce Clause* and the *Compact Clause* are about similar issues: in all three, the question is, in essence, whether a sub-federal transnational system would hinder the federal government's ability to act internationally on climate change[144]. It should be stressed, however, that the situation at stake is very different from the cases where generally the doctrines discussed above are applied, that is, cases where the States try «to exact something from a foreign state, or to condemn a foreign state's actions, or to enlarge state power»[145]. On the contrary, the hypotheses at stake would be examples of cooperation which could actually strengthen the US position at the international level, increasing the credibility of US commitments[146].

---

[134] R. HUFFMAN, J. WEISGALL, *Climate Change and the States*, *supra* note 70, p. 11.
[135] S. WELTON, *supra* note 111, p. 39.
[136] E. SWAINE, *Does Federalism Constrain the Treaty Power?*, in *Columbia Law Review*, 2003, vol.103, pp. 506-509.
[137] H. CHANG, *supra* note 110, p. 10779.
[138] 441 U.S. 434 (1979).
[139] S. WELTON, *supra* note 111, p. 39, H. CHANG, *supra* note 110, p. 10779.
[140] 512 U.S. 298 (1994).
[141] S. WELTON, *supra* note 111, p. 39.
[142] H. CHANG, *supra* note 110, 10779-10780.
[143] S. WELTON, *supra* note 111, p. 39.
[144] S. WELTON, *supra* note 111, p. 39.
[145] S. WELTON, *supra* note 111, p. 40.
[146] *Ivi* and R.B. STEWART, p. 705.

SECTION 4
EMISSIONS TRADING: THE EU, THE US AND THE GLOBAL REGIME

1. Assessing the Legal Literature on Emissions Trading: the Need for a Contextual Approach

Bogojević has remapped the existing literature on emissions trading, challenging the common idea that emissions trading is a simple and straightforward system that can easily be replicated in different jurisdictions, and in which law and legal issues have a marginal role. By dissecting emissions trading discourses in legal literature, the author has highlighted the different ways in which this mechanism has been conceptualized, showing that emissions trading, far from being a simple and uniform instrument, can give rise to diverse and complex governance structures, embedded with legal complexities. At the core of the emissions trading discourse lie questions concerning the allocation of regulatory power and the interplay between the State and the market. The widely debated question of the legal nature of allowances, for example, has recently been framed in terms of public-private relationships in the allocation of public scarce resources through the creation of private rights by the public power[147].

It follows that an emissions trading system can only be analysed and understood against the background of the legal context in which it operates: the prevailing emissions trading literature, which is technical, economics-centred and globally-oriented, proves methodologically inadequate.[148]. Paraphrasing Natalino Irti, the (emissions) market cannot be understood as a *locus naturalis*, separate and independent from the law, but rather as a *locus artificialis*, determined and shaped by the normative structure that creates it[149].

This new understanding of emissions trading sits well within the broader debate on the transformation of the distinction between the public and private spheres and the need to rethink the separation between the government and the market[150].

2. Climate Change and Legal Context: a Comparison Between the EU and the US

Some aspects of the interaction between the EU and US emissions trading systems and their respective legal contexts have been highlighted in Parts II and III. In order to understand the possibilities of EU and US coordination in the global scenario, it is crucial to examine the different approaches of these two legal orders towards climate change policies and towards two fundamental international environmental law principles: the precautionary principle and the principle of common but differentiated responsibilities[151].

---

[147] M. COLANGELO, *Creating Property Rights. Law and Regulation of Secondary Trading in the European Union*, 2012.

[148] This analysis summarizes the findings of S. BOGOJEVIĆ, *Emissions Trading Schemes*, *supra* note 18, 2013.

[149] See N. IRTI, *L'ordine giuridico del mercato*, Bari, 2008.

[150] See, e.g., D. GALLO, I servizi di interesse economico generale. Stato, mercato e welfare nel diritto dell'Unione europea, 2010, and specifically on climate change see L. GODDEN, F. ROCHFORD, J. PEEL, L. CARIPIS, R. CARTER, *Law, Governance and Risk: Deconstructing the Public-Private Divide in Climate Change Adaptation*, in *University of New South Wales Law Journal*, 2013.

[151] For the following analysis, see C.P.CARLARNE, *Climate Change Law and Policy*, *supra* note 27.

First of all, notable differences can be found in terms of "legal framework". The European Union is bound by emissions reduction obligations at the international level, and the Member States have emissions reductions obligations under international law, EU law and national law. In the US, on the contrary, there is no binding legal framework, either at the international or federal level. In the US, the lack of a comprehensive legal framework has given rise to a mosaic of sub-federal initiatives, judicial decisions and administrative measures. The result is a complex, fragmented and uncertain scenario.
A further difference concerns the "source of political leadership". European policies on climate change are dominated by the EU, which is thus able to speak with a unified voice in international negotiations. Moreover, the EU provides mechanisms «facilitating communication, cooperation and consensus building» between Member States[152]. On the other hand, in the US the political leadership belongs to the initiatives taken by sub-federal entities to fill the void at the federal level. As a consequence, the US cannot speak with a unified voice in the international arena and does not provide States with coordination instruments.
The EU and the US, furthermore, have very different approaches towards international law. The US tends to be much more inward-looking and, with regard to climate change, not only has it objected binding obligations, but it has also questioned the very principles upon which the international regime is based. The European Union, on the contrary, has been constantly and actively involved in the international climate regime and has embraced its founding principles.
It should be stressed, however, that also elements of convergence can be identified in EU and US climate change policies. In both cases, for example, one can identify "systemic pushes and pulls". The EU, however, manages to overcome internal divisions and reach consensus on climate change issues[153].

3. General Principles of International Environmental Law: EU and US approaches

The precautionary principle and the principle of common but differentiated responsibility are foundational principles that underpin the international climate change regime. Examining the EU and US approaches towards these principles is thus fundamental to understand the future prospects of EU and US cooperation in the fight against climate change.
The precautionary principle is enshrined in the Rio Declaration: «In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation»[154]. While the EU has always been a strong promoter of this principle, the US has opposed this approach and supported the "sound science" test. It has been argued that this position is due to the US "adversarial legalism", that is, a system that implies, compared to the EU, more frequent recourse to judicial review, more frequent judicial revision and delay of administrative decisions, and «more punitive legal sanctions

[152] *Ivi,* p. 257.
[153] *Ivi*, p. 264.
[154] *Rio Declaration on Environment and Development, Principle 15, Report of the United Nations Conference on Environment and Development* (Rio de Janeiro, June 3-14 1992), A/CONF.151/26 (Vol. I).

(including larger civil damage awards)»[155]. As a consequence, it has been underlined that the US fears that the principle would be enforced more vigorously in the US than in the EU, with a resulting *de facto* disparity of commitments[156].
With regard to the principle of common but differentiated responsibility, it was first formally used in the Rio Declaration[157], and was included in art. 3 of the UNFCCC: «The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof». In sum, in efforts to combat climate change, States' responsibilities must be differentiated according to their prior contribution to causing the phenomenon and their current ability to take measures against it[158].
The US, despite having never openly rejected the principle, has consistently objected to any interpretation of the principle that exempts developing countries from binding obligations[159]. The G77/China, on the contrary, «explicitly rejects the notion that developing countries should undertake any legally binding commitment»[160]. The EU position was originally closer to this second interpretation. Around 2009, however, the EU has started to emphasize the importance of a meaningful participation of emerging economies in efforts to combat climate change[161].

4. Legal Nature of Allowances

The legal nature of emissions rights in market-based systems has been intensely debated. From an ethical perspective, some have interpreted emissions allowances as a «privatization of the atmosphere», a «license to pollute» and an abuse of the commons[162]. It has been argued, however, that actually all «the State's environmental protection efforts are inevitably property-based in that all solutions to the 'tragedy of the commons' involve the imposition of property rights (private/individual, common or state/public) on formerly un-owned (non-

[155] C.P.CARLARNE, *Climate Change Law and Policy*, *supra* note 27, pp. 321-323.
[156] J. B. WIENER, *Whose Precaution After All? A Comment on the Comparison and Evolution of Risk Regulatory Systems*, in *Duke Journal of Comparative & International Law*, 2003, vol. 13, p. 247, J. BRUNNÉE, *The United States and International Environmental Law: Living with an Elephant*, in *European Journal of International Law*, p. 640, J. BRUNNÉE, *Europe, the United States, and the Global Climate Regime: All Together Now*?, in *Journal of Land Use & Environmental Law*, vol. 24, 2008, p. 33.
[157] L. RAJAMANI, *The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime*, in *Review of European, Comparative and International Environmental Law*, 2000, vol. 9, p. 120.
[158] *Ivi*, p. 121.
[159] C.P. CARLARNE, *Climate Change Law and Policy*, *supra* note 27, p. 338-339.
[160] *Ivi*, p. 339.
[161] C. P. CARLARNE, Climate *Change Law and Policy*, *supra* note 27, p. 340.
[162] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership and Nature of Kyoto Units and EU Allowances*, in D. FREESTONE, C. STRECK, *supra* note 6, 2009, pp. 37-38, G. TORRES, *Who Owns the Sky? Seventh Annual Lloyd K. Garrison Lecture on Environmental Law*, in *Pace Environmental Law Review*, 2001, vol. 18.

property or open-access) resources»[163]. No "privatization of the atmosphere" is involved, as «[t]he State does not transfer ownership in a parcel of air, but instead creates the right to release a certain amount of GHGs into the atmosphere»[164].

In the EU ETS Directive, an allowance (or EUA) is defined as «an allowance to emit one tonne of carbon dioxide equivalent during a specified period, which shall be valid only for the purposes of meeting the requirements of this Directive and shall be transferable in accordance with the provisions of this Directive»[165]. The Directive does not address the issue of the legal nature of allowances, as including such definition at the EU level was considered incompatible with the subsidiarity principle[166]. It is therefore up to the Member States to qualify the nature of emissions rights. Member States are hesitant to provide an explicit definition of the legal nature of EUAs, whose *sui generis* nature «does not seem to easily fit into existing national legal terms»[167]. Legal treatment differs from Member State to Member State: EUAs have been qualified sometimes as intangible goods, sometimes as financial instruments; definitions differ for accounting purposes; there has been uncertainty with regard to taxation[168]. These inconsistencies have been criticized for causing uncertainty and possible distortions of competition[169].

With regard to the US, the definition provided in the *Acid Rain Program* made it clear that an allowance is a «limited authorization» and that it does not constitute «a property right»[170].This was mainly due to the *Takings Clause* of the US Constitution, which states that private property cannot be taken for public use without just compensation[171]: «If the credits constituted private property, the government would have to offer fair compensation for regulations that had the effect of taking the value of this property »[172], such as decision to make the cap more stringent. However, the law itself provides that allowances «may be received, held, and temporarily or permanently transferred»[173], and the case-law has gradually attributed to the allowances many features of property. Gehring and Streck believe that such rights can be considered *de facto* property rights between private parties, but not

[163] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership*, *supra* note 162, p. 39, see also D.H.COLE, *Clearing the Air: Four Propositions about Property Rights and Envinronmental Protection*, in *Duke Environmental Law and Policy Forum*, 1999, vol. 10, pp. 107-108, V. JACOMETTI, *supra* note 25, pp. 25-26.
[164] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership*, *supra* note 162, p. 39.
[165] EU ETS Directive, art. 3.
[166] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership*, *supra* note 162, p. 49.
[167] M. POHLMAN, *The European Union Emissions Trading Scheme*, in D. FREESTONE, C. STRECK, *supra* note 6, p. 352.
[168] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership*, *supra* note 162, pp. 50-52,, see in general K. ANTTONEN M. MEHLING, K UPSTON-HOOPER, *Breathing Life into the Carbon Market: Leal Frameworks for Emissions Trading in Europe*, in *Environmental Law Review*, 2007, p. 97*, Application of the Emissions Trading Directive by the EU Member States-Reporting Year 2008,* European Environment Agency, Technical Report No 13/2008, http://www.eea.europa.eu/publications/technical_report_2008_13.
[169] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership*, *supra* note 162, p. 49.
[170] Clean Air Act amendments 1990, Article 403, letter f.
[171] Constitution of the United States, Fifth Amendment. See, e.g., M.W. GEHRING, C. STRECK, *Lessons from SOx and NOx*, *supra* note 28, pp. 10221-10222.
[172] *Ivi*, p. 10222.
[173] Clean Air Act, Section 403, letter f.

towards the State[174]. These considerations can be deemed valid also for US carbon emissions trading programs, as they include similar definitions[175].
Many authors consider emissions rights as a hybrid between an administrative permit and a property right, and define them «regulatory rights»[176]. In examining the legal nature of emissions entitlements, Manea has put forward the new category of "instrumental property": «the notion of instrumental property is defined by the public policy goals of the regulatory regime and also by the particular context in which the rights operate. Instrumental property must necessarily be balanced against extraneous public or private interests which the law regards as deserving protection».[177]

[174] M.W. GEHRING, C. STRECK, *Lessons from SOx and NOx*, *supra* note 28, p. 10224.
[175] M. WEMAERE, C. STRECK, T. CHAGAS, *Legal Ownership*, *supra* note 162, p. 54-55.
[176] B. YANDLE, *From Local to Global Commons: Private Property, Common Property, and Hybrid Property Regimes. Grasping for the Heavens: 3-D Property Rights and the Global Commons*, in *Duke Environmental Law & Policy Forum*, 1999, vol. 10, e M. WEMAERE, C. STRECK, T. CHAGAS, *supra* note 162, p. 44, V. JACOMETTI, *supra* note 25, p. 26.
[177] S. MANEA, *The Instrumentalization of Property. Legal Interests in the EU Emissions Trading Systems*, 2014.

CONCLUSION

Not only has the European Union supported the international climate framework: the UNFCCC and its principles are at the very core of European climate policies[178]. The multi-level structure of the EU itself, it has been noted, determines a multi-level involvement: «It is fair to say that the EU, its member states, and arguably even its public, have actually internalized these goals, values, and principles of the global climate regime to a significant degree. These norms have become woven into the legal and policy discourse within Europe and perhaps even into the identity of the EU as a member of the global climate community»[179]. The approach of the United States towards the UNFCCC regime has been very different: not only has the US not taken part in the Kyoto Protocol, but it has been openly hostile to the principles underpinning the Convention, has tried to limit their influence and has constantly denied them the status of international customary law[180]. However, many factors push towards a more significant involvement of the US (such as the pressure coming from both the international community and sub-federal initiatives)[181], and the Obama Administration, with the Clean Power Plan and its proposal to cut carbon emissions from existing power plants, has taken a major step and has challenged the Congress historic inaction on climate change.

Despite their different approaches and their different positions in the international arena, the EU and the US have certainly a feature in common on climate change issues: the centrality of economic considerations. The difference lies in the way economic considerations and the fight against climate change have been linked. The Bush Administration saw taking action against climate change only as a cost, and any international commitment to reduce emissions as a threat to the US economy. In the European Union, on the other hand, the fight against climate change has been depicted as an economic opportunity and a way to avoid greater costs in the future. The fact that the EU ETS is the cornerstone of EU climate policies proves how much economic considerations are taken into account in developing climate strategies. The Obama administration approach is closer to the European position. Carlarne notes: «h]eavy reliance on market-based mechanisms and growing concerns about the economic implications of stringent emissions limits are bringing US and EU climate policies closer together. Convergence around the question of economic well-being is to be expected»[182].

Cooperation between the EU and the US on climate change is key to the success of the fight against climate change. The analysis of this paper has highlighted only some of the legal issues arising in the systems examined: further research is required to develop a deep understanding of the EU and US emissions trading schemes, their regulatory structure, and the roles played by the government and the market in each administrative framework. Moreover, the future climate agreement could have an impact on the possibilities of EU and US cooperation by regulating linkages between different mechanisms. Ultimately, the present paper aims at taking the first steps towards a deeper understanding of the regulatory structures of emissions trading systems and their interaction with international law: only the right synergies can make the fight against climate change successful.

---

[178] J. BRUNNÉE, *Europe, the United States, and the Global Climate Change Regime*, *supra* note 156, p. 37.
[179] J. BRUNNÉE, *The United States and International Environmental Law*, *supra* note 156, p. 629.
[180] *Ibidem*.
[181] C.P. CARLARNE, *Climate Change Law and Policy*, *supra* note 27, p. 261.
[182] *Ivi*, pp. 276-280.

References

ANTTONEN K., MEHLING M., UPSTON-HOOPER K., *Breathing Life into the Carbon Market: Legal Frameworks of Emissions Trading in Europe*, in *European Environmental Law Review*, 2007, p. 96 *et seq.*

BAKKER C., FRANCIONI F., *The EU, the US and Global Climate Governance,* 2014.

BIRNIE P., BOYLE A., REDGWELL C., *International Law and the Environment*, Oxford, 2009, p. 335 *et seq.*

BODANKSY D., HOEDL S., METCALF G.E., STAVINS R.N., *Facilitating Linkage of Heterogeneous Regional, National, and Sub-National Climate Policies Through a Future International Agreement*, Discussion Paper, Harvard Project on Climate Agreements, Belfer Center for Science and International Affairs, Harvard Kennedy School, November 2014.

BOGOJEVIĆ S., *Emissions Trading Schemes: Markets, States and Law*, Oxford, 2013.

BOGOJEVIĆ S., *The EU ETS Directive Revised: Yet Another Stepping Stone*, in *Environmental Law Review*, vol. 11, p. 279 *et seq*.

BRUNNÉE J., *Europe, the United States, and the Global Climate Regime: All Together Now*?, in *Journal of Land Use & Environmental Law*, vol. 24, 2008, p. 1 *et seq.*

BRUNNÉE J., *The United States and International Environmental Law: Living with an Elephant*, in *European Journal of Environmental Law*, vol. 15, 2004, p. 617 *et seq.*

CAPOOR K., AMBROSI P., *State and Trends of the Carbon Market 2007*, *The World Bank*, Washington, D.C., 2007.

CARLARNE C. P., *Climate change law and policy : EU and US approaches*, Oxford, 2010.

CAROTHERS C., *United We Stand: the Interstate Compact as a Tool for Effecting Climate Change*, in *Georgia Law Review*, vol. 41, 2006, p. 229 *et seq*.

CHANG H., *Foreign Affairs Federalism: The Legality of California's Link With the European Union Emissions Trading Scheme*, in *Environmental Law Reporter*, vol. 37, 2007, p. 10771 *et seq.*

COASE R. H., *The Problem of Social Cost*, in *Journal of Law and Economics*, vol. 3, 1960, p. 1 *et seq.*

COLANGELO M., *Creating Property Rights*. *Law and Regulation of Secondary Trading in the European Union*, 2012.

COLE D. H., *Clearing the Air: Four Propositions About Property Rights And Environmental Protection*, in *Duke Environmental Law & Policy Forum*, vol. 10, 1999, p. 103 *et seq.*

DARI-MATTIACCI G., VAN ZEBEN J., *Legal and Market Uncertainty in Market-Based Instruments: the Case of the EU ETS*, in *N.Y.U. Environmental Law Journal*, vol. 19, 2012, p. 101 *et seq.*

DE CENDRA DE LARRÁGAN J., *Distributional Choices in Climate Change Law and Policy*, 2010.

DRIESEN D. M., ADLER R. W., ENGEL K. H., *Environmental Law. A Conceptual and Pragmatic Approach*, 2011.

EGENHOFER C., *The Making of the EU Emissions Trading Scheme: Status, Prospects and Implications for Business*, in *European Management Journal*, vol. 25, 2007, p. 453 *et seq.*

ELLERMAN A. D., CONVERY F. J., DE PERTHUIS C., *Pricing Carbon: The European Union Emissions Trading Scheme*, Cambridge, 2010.

ELLERMAN A. D., JOSKOW P. L., HARRISON, D. JR., *Emissions trading in the U.S. Experience, Lessons, and Considerations for Greenhouse Gases*, (*prepared for the*) *Pew Center on Global Climate Change*, 2003.

FARBER D. A., *Climate Change, Federalism, and the Constitution*, in *Arizona Law Review*, vol. 50, 2008, p. 879 *et seq.*

FAURE M., PEETERS M. (edited by), *Climate Change and European Emissions Trading. Lessons for Theory and Practice*, 2008.

Foreign Affairs Preemption and State Regulation of Greenhouse Gas Emissions, in *Harvard Law Review*, vol. 119, 2006, p. 1877 *et seq.*

FREESTONE D., STRECK C. (edited by), *Legal Aspects of Carbon Trading. Kyoto, Copenhagen, and beyond*, Oxford, 2009.

FUNK. W., *Constitutional Implications of Regional CO_2 Cap-and-Trade Programs: The Northeast Regional Greenhouse Gas Initiative as a Case in Point*, in *UCLA Journal of Environmental Law & Policy*, vol. 27, 2009, p. 353 *et seq.*

GEHRING M. W., STRECK C., *Emissions Trading: Lessons From SOx and NOx Emissions Allowance and Credit Systems Legal Nature, Title, Transfer, and Taxation of Emission Allowances and Credits*, in *Environmental Law Reporter*, vol. 35, 2005, p. 10219 *et seq.*

GHALEIGH N.S., *Two Stories About EU Climate Change Law and Policy*, in *Theoretical Inquiries in Law*, vol. 14, 2013, p. 70 *et seq.*

GODDEN L., ROCHFORD F., PEEL J., CARIPIS L., CARTER R., *Law, Governance and Risk: Deconstructing the Public-Private Divide in Climate Change Adaptation*, in *University of New South Wales Law Journal*, 2013.

HANSÜRGENS B. (edited by), *Emissions Trading for Climate Policy. US and European Perspectives*, Cambridge, 2005.

HIBBARD P. J., TIERNEY S. F., OKIE A. M., DARLING P. G., *The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States*, *Analysis Group*, 2011.

HUBER B. R., *How Did RGGI Do It? Political Economy and Emissions Auctions*, in *Ecology Law Quarterly*, vol. 40, 2013, p. 59 *et seq.*

HUFFMAN R. K. WEISGALL J. M., *Climate Change and the States: Constitutional Issues Arising from State Climate Protection Leadership*, in *Sustainable Development Law & Policy*, vol. 8, 2008, p. 6 *et seq.*

IRTI N., *L'ordine giuridico del mercato*, Bari, 2010.

JACOMETTI V., *Lo scambio di quote di emissione. Analisi di un nuovo strumento di tutela ambientale in prospettiva comparatistica*, Milano, 2010.

KRUGER J., OATES W. E., PIZER W. A., *Decentralization in the EU Emissions Trading Scheme and Lessons for Global Policy*, in *Review of Environmental Economics and Policy*, vol. 1, 2007, p. 112 *et seq.*

LATIN H., *Ideal Versus Real Regulatory Efficiency: Implementation of Uniform Standards and "Fine-Tuning" Regulatory Reforms*, in *Stanford Law Review*, vol. 37, 1985, p. 1267 *et seq.*

LENAERTS K., *The Principle of Subsidiarity and the Environment in the European Union: Keeping the Balance of Federalism*, in *Fordham International Law Journal*, vol. 17, 1993, p. 846 *et seq.*

LISOWSKI M., *Playing the Two-Level Game: US President Bush's Decision to Repudiate the Kyoto Protocol*, in *Environmental Politics*, vol. 11, 2002, p. 101 *et seq.*

MANEA S., *The Instrumentalization of Property. Legal Interests in the EU Emissions Trading System*, 2014.

MARCU A., *The Role of Market Mechanisms in a Post-2020 Climate Agreement*, Center for European Policy Studies, 2014.

MONTINI M. (a cura di), *Il Protocollo di Kyoto e il Clean Development Mechanism: aspetti giuridici e istituzionali*, Milano, 2008.

NASH J. R., *Too Much Market? Conflict between Tradable Pollution Allowances and the "Polluter Pays" Principle*, in *Harvard Environmental Law Review*, vol. 24, 2000, p. 465 *et seq.*

NEWELL R. G., PIZER W. A., RAIMI D., *Carbon Markets 15 Years after Kyoto: Lessons Learned, New Challenges*, in *The Journal of Economic Perspectives*, vol. 27, 2013, p. 123 *et seq.*

RABE, B. G., *The Aversion to Direct Cost Imposition: Selecting Climate Policy Tools in the United States*, in *Governance: An International Journal of Policy, Administration, and Institutions*, vol. 2, 2010, p. 583.

RAJAMANI L., *The Principle of Common but Differentiated Responsibility and the Balance of Commitments under the Climate Regime*, in *Review of European, Comparative & International Environmental Law*, vol. 9, 2000, p. 120 *et seq.*

RAMSEUR J. L., *The Regional Greenhouse Gas Initiative: Lessons Learned and Issues for Policymakers*, *Congressional Research Service*, 2013.

RICE B. V., *The "Triumph" of the Commons: An Analysis of Enforcement Problems and Solutions in the Western Climate Initiative*, in *Pacific McGeorge Global Business & Development Law Journal*, vol. 22, 2009-2010, p. 401 *et seq.*

SANDS P., PEEL J., (with) FABRA A., MACKENZIE R., *Principles of International Environmental Law*, Cambridge, 2012, p 274 *et seq.*

SKJÆRSETH J. B., WETTESTAD J., *The Origin, Evolution and Consequences of the EU Emissions Trading System*, in *Global Environmental Politics*, vol. 9, 2009, p. 101 *et seq.*

SMITH M. S., *Murky Precedent Meets Hazy Air: The Compact Clause and the Regional Greenhouse Gas Initiative*, in *Environmental Affairs Law Review*, vol. 34, 2007, p. 387 *et seq.*

STAVINS R. N., *Experience with Market-based Environmental Policy Instruments*, in MÄLER K.-G., VINCENT J. (edited by), *Handbook of Environmental Economics*, Amsterdam, 2003, p. 355 *et seq.*

STEWART R. B., *States and Cities as Actors in Global Climate Regulation: Unitary vs. Plural Architectures*, in *Arizona Law Review*, vol. 50, 2008, p. 681 *et seq.*

The Compact Clause and the Regional Greenhouse Gas Initiative, in *Harvard Law Review*, vol. 120, 2007, p. 1958 *et seq.*

TIETENBERG T. H., *Introduction*, in TIETENBERG T. H., *Emissions Trading: Principles And Practice*, 2006, p. 1 *et seq.*

VAN CALSTER G., VANDENBERGHE W., REINS L., *Research Handbook on Climate Change Mitigation Law*, 2015.

VAN ZEBEN J., *(De)Centralized Law-making inthe Revised EU ETS*, in *Carbon & Climate Law Review*, vol. 3, 2009, p. 340 *et seq.*

VAN ZEBEN J., *Case Note. Respective Powers of the European Member State and Commission Regarding Emissions Trading and Allowance Allocation*, in *Environmental Law Review*, vol. 12, 2010, p. 216 *et seq.*

VLACHOU A., *The European Union's Emissions Trading System*, in *Cambridge Journal of Economics*, 2013.

WARREN D. P., TOMASHEFSKY S., *The Western Climate Initiative*, in *State and Local Government Review*, vol. 41, 2009, p. 55 *et seq.*

WELTON S., *State Dynamism, Federal Constraints: Possible Constitutional Hurdles to Cross-Border Cap-and-Trade*, in *Natural Resources & Environment*, vol. 27, 2012, p. 36 *et seq.*

WIENER J. B., *Whose Precaution After All? A Comment on the Comparison and Evolution of Risk Regulatory Systems*, in *Duke Journal Of Comparative & International Law*, vol. 13, 2003, p. 207 *et seq.*

WOLD C., HUNTER D., POWERS M., *Climate Change and the Law*, 2009.

YANDLE B., MORRISS A. P., *The Technologies of Property Rights: Choice Among Alternative Solutions to Tragedies of the Commons*, in *Ecology Law Quarterly*, vol. 28, 2001, 123 *et seq.*