

# TRANSWORLD

THE TRANSATLANTIC RELATIONSHIP AND THE FUTURE GLOBAL GOVERNANCE

ISSN 2281-5252

WORKING PAPER 26 | MAY 2013

This paper examines the main legal and economic aspects of the EU Emission Trading System (EU ETS), with a particular emphasis on its features with respect to previous cap-and-trade regimes, its environmental and technological effectiveness and its potential role as a prototype for a global emission trading system. The EU has surprisingly changed its role from follower to forerunner in the ETS race. Despite being a prototype for other countries, however, the EU expe-

## The European Emission Trading System: Flashing Lights, Dark Shadows and Future Prospects for Global ETS Cooperation

Simone Borghesi and  
Massimiliano Montini

rience has shown a mixed skylight, characterized by flashing lights and dark shadows. Keeping this in mind, the paper investigates the prospects for the extension of the EU ETS on a global scale, examining whom should regulate the global ETS and how. Three possible options are identified and discussed: (i) a worldwide ETS; (ii) a global network of regional/domestic ETS regimes; (iii) a linkage scheme between interacting regional/domestic ETS blocks.

Transworld is supported by the  
SEVENTH FRAMEWORK PROGRAMME



# The European Emission Trading System: Flashing Lights, Dark Shadows and Future Prospects for Global ETS Cooperation

Simone Borghesi and Massimiliano Montini\*

---

European Union USA Climate change EU ETS ETS cooperation

---

## Introduction

---

The European Union Emissions Trading System (EU ETS) has received increasing attention in the last few years both amongst scholars and policy-makers. Many contributions have examined the legal and economic features underlying the functioning of the system (e.g. Kruger, Oates and Pizer 2007, Ellerman, Convery, and Perthuis 2010, Ellerman 2010, OECD 2011), as well as the environmental effectiveness of its implementation (e.g. Anderson and Di Maria 2011, Rogge, Schneider and Hoffmann 2011, Calel and Dechezleprêtre 2012). The importance of these analyses goes beyond the EU ETS itself, since cap and trade regimes can be considered one of the most prominent examples of the application of market-based instruments to environmental issues. In fact, the EU ETS represents the tip of the iceberg vis-à-vis the existing cap and trade regimes within the climate change sector, whilst the emission trading regimes can be considered the most relevant application of market solutions to environmental problems.

This paper aims to examine the main legal and economic aspects of the EU ETS, with particular emphasis on: (i) its features with respect to previous cap-and-trade regimes; (ii) its environmental and technological effectiveness; and (iii) its potential role as a prototype for a global emission trading system.

For this purpose, the structure of the paper will be the following. Section 1 briefly reviews the origin of the EU ETS, starting from the early experiences in the United States (US) and focusing on developments within the EU from a historical perspective. Section 2 describes the main features of the EU ETS as it currently stands, emphasising the good and bad points -the lights and shadows- that characterise its application. Section 3 analyses the environmental and technological effectiveness of the EU ETS, focusing in particular on the period from 2005 to 2012. Section 4 focuses on the prospects for a global network of emission trading systems, discussing alternative options to enlarging the scope of the existing ETS domestic/regional regimes, ranging from multilateralism to bilateralism. In such a context, the possibility of relying upon the comity principle, developed and applied particularly in common law countries, is examined. Section 5 provides some concluding remarks on the main findings that emerge from the analysis and on the prospective directions for ETS cooperation in the future.

*\* Simone Borghesi is Researcher at the Department of Political and International Studies, University of Siena. Massimiliano Montini is Associate Professor of European Union Law at the Department of Business and Law, University of Siena.*

## 1. Origin of the EU ETS: From the US to the EU and Backwards

---

The introduction of the ETS dates back to the 1970s, when it was firstly applied in the US to implement the Clean Air Act. The success achieved by such a system in reducing air emissions in several US states subsequently led many other countries to adopt a similar policy tool in their own jurisdictions. In particular, this applied to Anglo-Saxon countries with a traditional liberal approach, more prone to the use of market-based instruments. For example, emission trading systems have been implemented in Australia to reduce water pollution and consumption, as well as in the United Kingdom (UK), where in 2002 the first broad application of a GHG trading scheme was conceived.

On the contrary, for a long time the European Union was much more focused on “command and control” regulation and it was only gradually that its environmental policies evolved towards a more balanced approach encompassing the use of market instruments. In fact, the European Commission firstly promoted the adoption of an EU-wide carbon tax in 1991. This proposal, however, was eventually abandoned, since it failed to garner broad support from EU member states, mainly due to the negative reaction of the European industrial sector.

Subsequently, the EU, spurred on by the US experience in this field, shifted its attention to the application of the ETS to GHG emissions. An EU ETS was first introduced by Directive 2003/87/EC, which the EU Council and the European Parliament (EP) approved in October 2003 (EU 2003b). This piece of legislation initially applied to a few sectors (i.e. energy activities – for example oil refineries –, production and processing of ferrous metals, the mineral industry, and the pulp and paper industry), and to CO<sub>2</sub> only. Later, its scope was extended to include the aviation sector with Directive 2008/101/EC and subsequently the whole EU ETS scheme was revised and updated with the adoption of Directive 2009/29/EC (EU 2008 and 2009).

Surprisingly enough, the EU and the US seemed to have inverted their trends. While the EU reached an agreement on the implementation of the EU ETS and further extended the scheme to other sectors (petrochemicals, ammonia, aluminium) and gases (nitrous oxide), the US did not manage to establish an overall federal ETS system, despite the forerunner experience of California and the RGGI scheme established in some of the Northeast and Mid-Atlantic States of the US.

The consequence of this new scenario is that the EU has gained a leadership role in the fight against climate change. The attempt to keep up with the US has led the EU to overtake the US while making use of its own preferred policy tool. As Ellerman correctly pointed out, this denotes a change in leadership in terms of environmental policies at a global level. Nowadays, most countries, including the US itself, look at the EU ETS as a prototype to be followed (Ellerman 2010 and 2013). This leads to the main questions which this paper aims to address: is the EU ETS suitable to be extended to other countries? And if not, is the EU the right benchmark for other countries to develop their own domestic ETS models?

## 2. Lights and Shadows of the EU ETS

---

The experience of the application of the EU ETS Directive in the first two phases (2005-2007 and 2008-2012) shows some flashing lights and a few dark shadows. The main flashing light is the creation of a giant European market with 31 countries (the 27 EU member states plus Iceland, Liechtenstein, Norway and Croatia), which covers more than 11,000 installations. The unexpected capacity of the EU to establish such a broad system

in a relatively short time is by far the most important feature that distinguishes the EU ETS from previous experiences in this field and makes it a benchmark for countries around the world. The advantage of such a large market size goes far beyond all the other well-known theoretical advantages of an ETS system, such as the induced technological innovation, the concrete application of the “polluter pays” principle as well as the greater flexibility of an ETS regime with respect to more traditional command and control instruments. Not only does the scope of the European market boost competition amongst the economic agents, but it also increases the possibilities of finding buyers for participating installations, thus rewarding innovative firms that manage to reduce emissions. This has the potential to reinforce the incentive to invest in new low-carbon technologies.

On the other hand, a few dark shadows obscure the horizon of the EU ETS. First, the market price proved to be too volatile during the first two phases. While in the initial phase this was mainly due to an over-allocation of permits, reflecting an on-going learning process linked to a new market, in the second phase, this can be ascribed to a drastic decrease in demand for permits caused by the severe economic crisis. On top of that, the difficulty of achieving an international agreement for the post-2012 period lowered the sense of urgency about the necessity of staying on track for the enforcement of the environmental policy goals set by the EU, most notably the reduction of emissions by 20 percent (compared to 1990 levels) by 2020. This has caused most firms to adopt a wait-and-see approach, which has led to a tendency to postpone costly investments in low-carbon technologies.

Second, the inadequate transparency of the monitoring and sanctioning system and the difficulty in getting access to data on the actual performance of the single installations, as well as their trading activities, has cast doubts over the effectiveness of the whole system. As a matter of fact, data sets publicly available on installations involved in the system do not allow for satisfactory analysis of the transactions which have actually occurred and of the related price and, as a consequence, of the actual functioning of the EU ETS. While we are fully aware of the duty to protect the commercial secrets of the firms involved, the denial of information on the actual trading dynamics of each installation subject to the EU ETS obligations clashes with the right to environmental information guaranteed to everyone by EU Directive 2003/4. In fact, the latter Directive recognises the right of all citizens to access information on the environment held by public authorities – and data on emission trading without a doubt falls into this category (EU 2003a). It would definitely be important to know whether a given installation is trading with other plants in the same commercial sector or not, whether these are located in the same country or abroad, about the kind of relationship which exists between trading partners, whether the trade between them is direct or if they make use of trading platforms, and so on. Unfortunately, this is presently not the case.

The repeated frauds which occurred in the EU ETS market during the first two phases confirm the difficulty in effectively monitoring the scheme and reinforce the call for more transparency. The observed activity of the EU ETS might have been largely influenced by such frauds in the past. For instance, as Frunza, Guegan and Thiebaut (2010) have shown, the volume of permits being traded in the Paris stock exchange fell dramatically once the so-called VAT fraud had been discovered. This suggests that the permit exchanges in that market were probably spurred more by the illegal activity that took place in the absence of proper regulation rather than by the actual need to cover emissions. Therefore, Ellerman is right to argue that the EU ETS system is a prototype, but not quite a model as it stands. In fact, the shortcomings highlighted above should be addressed and resolved in order to make the European system a real benchmark for schemes to be applied in other jurisdictions.

### 3. Environmental and Technological Effectiveness of the EU ETS in the Period 2005-2012

---

One of the most important and controversial aspects of ETS regimes concerns their environmental effectiveness. While largely there seems to be consensus in the literature on the efficiency (i.e. cost-effectiveness) of the ETS instrument, its capacity to actually reduce emissions is still the object of debate, apparently depending on many different factors. This seems to apply also to the recent implementation of the EU ETS. During the first two phases, European emissions were substantially reduced. However, one may wonder whether this can be ascribed to the ETS, suggesting a causal relationship, or whether there is simply a spurious correlation between the two events.

According to the latest data released by the European Environment Agency (EEA) in 2012, EU emissions have steadily declined in the last few years due to warmer weather conditions and more expensive fuels (EEA 2012b). This has led experts to claim that the EU managed to achieve and actually “overshot” the 8 percent emissions reduction target required by the Kyoto Protocol. As a matter of fact, the overall EU27 GHG emissions were estimated to be 7.7 percent below the 1990 levels in 2006, 11.3 percent below that benchmark year in 2008 and 17.5 percent below in 2011 (EEA 2012a, 2012b and 2012c), so that the Kyoto targets have not only been met, but largely surpassed so that the Kyoto targets have not only been met, but largely surpassed.

These encouraging results, however, should be taken with some caution for at least two reasons. First, the estimated emissions reductions should be related to worldwide economic recession that has significantly reduced industrial production (and consequently the resulting emissions of GHG). A look at EU15 emissions trends before the on-going crisis (cf. Borghesi 2011, EEA 2010) shows that, when the crisis began to loom large in 2007, emissions were well above the intermediate target, so that the EU15 was not on track to achieve the final Kyoto target. Second, the overall EU emissions reductions have mainly been driven by the EU enlargement into Eastern European countries that have experienced a dramatic decline in their production with respect to 1990 levels. From closer scrutiny of the data, in fact, it emerges that in the new member states GHG emissions have decreased by 26.7 percent between 1990 and 2008, whereas in the EU15 emissions have fallen by only 6.5 percent in the same period (EEA 2010). Therefore, without the economic crisis and enlargement, the EU would most probably have experienced serious difficulties in achieving the Kyoto Protocol target.

Another particularly relevant aspect for the assessment of the EU ETS performance concerns its impact on environmentally friendly technological innovation (see Bellas and Lange 2011). Carbon pricing can persuade the most virtuous firms to invest in new technologies, with a twofold goal: firstly, to avoid purchasing costly tradable permits; secondly, to sell, and thus monetise, the available permits in excess. Furthermore, innovative firms can gain early mover advantages from being at the forefront in the cap and trade market. This can allow them to acquire a dominant position, derived from the capacity to anticipate competitors in the implementation of environmentally friendly innovations (eco-innovations). The incentive to invest in low-carbon technologies, however, is diminished if the carbon price is low or extremely volatile. In the former case, this is because a low carbon price leads firms to keep using the old, polluting technologies and buy pollution permits rather than shift to new environmentally friendly technologies. In the latter case, it is because high price volatility generates uncertainty about the actual profitability in investing in the new technology, and about the expected advantages of eco-innovations.

In these terms, a preliminary analysis of Italian firms (Borghesi, Cainelli and Mazzanti 2012) based on Community Innovation Survey (CIS) data<sup>1</sup> shows that the implementation of the EU ETS had a limited impact on eco-innovation in Italy during the first phase (2005-2007). Econometric results suggest that a “wait and see” policy has prevailed in Italy among firms subject to the ETS. This can be mainly ascribed to the uncertainty surrounding the functioning of a totally new market mechanism, as well as to the high price volatility observed in the first phase. The low propensity to perform eco-innovation is particularly remarkable in specific sectors, such as the cement and ceramic industries. These dynamics, which are to be verified for subsequent EU ETS phases, reinforce the necessity of deepening and expanding empirical research. In this regard, it seems important to conduct a case-study on sectoral trading, particularly in those energy-consuming sectors (e.g. cement and steel) in which eco-innovation is below the European average. This would allow us to understand whether or to what extent sectoral trading can trigger economic innovation, since such an instrument is meant to play a crucial role in the “new market mechanism” negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) (Michaelowa 2012).

## 4. Prospects for a Global Network of Emission Trading Systems

---

The lessons learned from the EU experience provide a useful benchmark for the extension of the ETS on a global scale. In this regard we can conceive three alternative options:

- a worldwide ETS;
- a global network of regional/domestic ETS regimes;
- a linkage scheme between interacting regional/domestic ETS blocks.

The first option, which was originally conceived of as the key instrument to facilitate full achievement of targets by all Kyoto Protocol parties, though theoretically very intriguing, presents serious regulation and implementation problems.

As far as regulation is concerned, it is difficult to imagine the possibility of reaching a worldwide agreement on the establishment of a global ETS, given the disappointing outcome of negotiations on the post-2012 period recorded in the last few years, from Copenhagen 2009 onwards (Montini 2011, Bodansky 2010). Therefore, there seems to be no room for the creation of a global ETS in the absence of an *ad hoc* agreement.

Even assuming, for the sake of argument, that an agreement could be reached in the future, a serious question arises as to who should hypothetically regulate such a global system, and how. In any case, the regulator would face severe implementation problems. The European experience shows that over-allocation would most probably arise due to the lack of information and transparency, thus leading to monitoring and verification problems. These drawbacks could be effectively reduced only in the presence of a strong regulator, but this seems very unlikely to materialise in the foreseeable future.

Considering that the prospects for agreeing upon a new international agreement on a worldwide ETS seem very unlikely, a second option could be that of establishing a global network of regional/domestic ETS regimes,

---

<sup>1</sup> The CIS data set is the main data source for measuring innovation (including environment-related innovation) in Europe. The aggregated data, disseminated on the Eurostat webpage, covers several dimensions of the innovations performed by enterprises such as: product and process innovation, innovation activity and expenditure, effects of innovation, innovation co-operation, public finding of innovation, source of information for innovation patents, etc.

based largely on existing systems. This possibility seems to be more feasible, since in this case sovereign countries would not need to delegate many competences to a global regulator. The existing regimes could hypothetically aggregate around the EU ETS, which would most probably be recognised as the benchmark due to its broad coverage and past experience. Nevertheless, one cannot disregard the difficulties that might arise, even in this case, in negotiating a global agreement on coordinating the regional/domestic regimes within a single global network. The need for participating countries to coordinate would imply the necessity to partially revise their regional/domestic regimes so as to set common working rules for the functioning of the international network. The parties would likely have to give up part of their sovereign authority in this field for the benefit of the establishment of a global network. This would be likely to encounter opposition in many countries, particularly at a time characterised by the crisis of environmental multilateralism, as emphasised by the disappointing outcome of the Rio+20 summit in June 2012. Hence, although this second option would require a significantly more limited agreement than that envisaged under the first option, the observed negative trend of multilateralism would also most probably affect the possibility of reaching an international agreement on the establishment of a global network connecting the existing domestic/regional regimes.

Given the difficulties related to the establishment of a global ETS, with or without a single regulator, a more viable and realistic option would consist of the establishment of a series of bilateral agreements between interacting regional/domestic ETS blocks. This would be an alternative way to create a global network, leading to a similar outcome to the one discussed above, but with lower transaction costs. To make an example, if two countries (A and B) agree on common rules for developing an integrated ETS, and the same applies to countries B and C, for the transitive property A and C will end up sharing common rules. Moreover, prices will tend to converge in all involved systems, leading to a more competitive international market.

In order to fully promote the bilateral agreements option, transatlantic cooperation based on the EU ETS and US experiences in the same sphere would be highly desirable. This could represent the most relevant example of interacting blocks, linking the EU, as the largest existing ETS system in the world, with the US, which has the broadest long-standing expertise in cap and trade. The resulting transatlantic scheme would be based on some agreed common principles and rules, but without a common regulator, so that each system would retain its own independent authority. This option could build on the experience of the pilot bilateral agreement between EU and Australia, which links the two respective ETS regimes and enables trading between the two blocks. As the initial EU-Australia agreement points out: "Linking emissions trading systems provides a number of benefits including reducing the cost of cutting carbon pollution, increasing market liquidity and supporting global cooperation on climate change" (European Commission 2012).

However, these hypothetical benefits should be carefully evaluated. In fact, the benefits derived from the enlargement of the market could be counterbalanced by the higher administrative costs derived from the need to coordinate different jurisdictions.

Moreover, the allocation criteria should be harmonised if market competition is to be preserved. Otherwise, less stringent allocation criteria in one jurisdiction would end up favouring installations based in that jurisdiction at the expense of those located in another. In the absence of a basic core of common standards and appropriate coordination, this might lead to a race to the bottom in environmental terms, since each jurisdiction would be prone to protect the interests of their domestic players, by promoting or tolerating over-allocation. One cannot disregard the possibility that multinational firms might be tempted to relocate their installations to less stringent jurisdictions, thus giving rise to unexpected carbon leakage between developed countries. Finally, although the enlargement of the ETS market may increase competition and reduce abatement costs, it may

also increase price volatility due to imitative behaviour in the financial market. The well-known phenomenon of herd behaviour (namely, the observed tendency of individuals in a group to mimic the choices of others rather than decide on their own) that characterises many financial markets and has recently played a major role in triggering the present global crisis, may also in fact occur in this field, since the ETS is itself a financial market.

Another issue to be carefully addressed concerns the need to develop adequate instruments aimed at reducing the risk and the degree of severity of controversies possibly arising among interconnected ETS regimes. In this sense, a lesson could be learned from the application of the so-called comity principle, which has a long-standing application particularly in common law countries, where it is used as an instrument for avoiding or resolving conflicts between different jurisdictions.

The comity principle can essentially be described as a doctrine of politeness and due regard for the interests of other nations, which *inter alia* encourages the recognition by one country of the judicial acts of another. In strictly legal terms, the comity principle is not a legally binding rule which imposes absolute obligations, but is rather an act of goodwill between sovereign states. It has been described as “a kind of international golden rule” or “a principle of conduct”, according to which “each nation should give that respect to the laws, policies and interests of others that it would have others give to its own in the same or similar circumstances” (Maier 1996:70).

The comity principle derives from the writings of the Dutch legal scholar Huber in the 17th century, who codified it as an instrument which could be relied upon by nations in order to make use of the laws, policies and decisions of foreign countries while fully maintaining their sovereignty (Maier 1996:69-71). The comity principle was reaffirmed by Justice Story in the US in the 19th century (Story 1883:33). Its full recognition as a tool for courts to prevent and address conflicts of jurisdiction between sovereign countries was eventually made by the US Supreme Court in the case *Hilton v. Guyot* in 1895. Since then, the principle has been also referred to as “International Comity” or the “Comity of Nations” principle.<sup>2</sup>

The comity principle is invoked and applied in several areas. Most notably, in recent times, the principle has been included in the Agreements on International Antitrust Cooperation between the EU and the US, most notably the framework 1991 European Community (EC)-US Agreement on the application of competition laws<sup>3</sup> and the subsequent 1998 EC-US Agreement on the application of the positive comity principle in the enforcement of competition laws.<sup>4</sup> Today the comity principle is considered the most relevant instrument to avoid or manage conflicts of jurisdiction which may arise in the application of respective competition laws by the EU and the US.

The comity principle has, in fact, a twofold dimension, consisting of a negative and a positive comity, both of which are highly relevant for the scope of our analysis.

The negative comity dimension can be applied by national enforcement authorities and courts when a

---

2 The US Supreme Court stated *inter alia* that: “Comity; in the legal sense, is neither a matter of absolute obligation, on the one hand, nor of mere courtesy and goodwill, upon the other. But it is the recognition which one nation allows within its territory to the legislative, executive, or judicial acts of another nation, having due regard both to international duty and convenience and to the rights of its own citizens or of other persons who are under the protection of its laws.” (US Supreme Court 1895:164-5).

3 *Agreement between the Government of the United States of America and the Commission of the European Communities regarding the application of their competition laws*, Washington, 23 September 1991, OJ L 95, 27.4.1995, <http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=300>.

4 *Agreement between the European Communities and the Government of the United States of America on the application of positive comity principles in the enforcement of their competition laws*, Brussels and Washington, 4 June 1998, OJ L 173, 18.6.1998, <http://ec.europa.eu/world/agreements/prepareCreateTreatiesWorkspace/treatiesGeneralData.do?step=0&redirect=true&treatyId=310>.

sovereign country, in case of transnational/transatlantic fraud, decides not to pursue an investigation, leaving it to the authority of the other state. In order to rely on the negative comity principle, the parties must have similar regulatory systems based on the same principles.

The positive comity dimension refers to positive acts of reciprocal assistance between national authorities of different countries. The application of positive comity requires highly developed and efficient legal regimes, similar substantive and procedural rules, and a considerable level of reciprocal trust between the concerned enforcement authorities.

In the case of a hypothetical instance of transatlantic fraud in the framework of the integrated ETS regimes, the EU and US regulators could rely on the negative comity principle in order to exchange information and coordinate activities. In some more serious circumstances, the positive comity principle could also apply, leading to the option for one of the regulators to leave the responsibility to solve the controversy to the other one, while helping the partner authority to find the best solution from the point of view of both jurisdictions. Therefore, in our opinion, the application of the comity principle in this field would be very helpful to reduce the risks and consequences of transatlantic frauds and related international controversies. This seems particularly important given the high number of fraudulent instances that have adversely affected the EU ETS in the last few years.

## Conclusions

---

The analysis conducted above has described the evolution of the European cap and trade system, from its origins to the present state, as well as its future prospects. Surprisingly, the EU has changed its role from follower (of the US) to forerunner in the ETS race. However, in this attempt to stand as a prototype for other countries, the EU ETS shows a mixed skyline, characterised by both flashing lights and dark shadows.

The capacity of the EU to build a broad and encompassing carbon market in a short time is, in our opinion, the most astonishing feature that distinguishes this experience from all other ETS in the world. However, such rapid achievement has had its own drawbacks: high price volatility, scarce transparency, limited monitoring capacity and the related high risk of fraud.

Even the reported success of the EU ETS in reducing carbon emissions and inducing technological innovation is not a clear-cut result. The flashing light of the sharp CO<sub>2</sub> reduction is obscured by the dark shadow of the ongoing crisis. Once the clouds of crisis begin to lift, one might wonder whether the flashing light will stay bright, or CO<sub>2</sub> emissions will start rising again.

The expected technological improvement driven by the EU ETS is itself an object of debate. Further evidence will be needed in the future to disentangle this aspect and fully evaluate the real technological reactivity to the EU ETS.

Keeping these shadows in mind as both lessons and warnings for the future, we have discussed the prospects for the extension of the ETS on a global scale, examining who should regulate the global ETS and how.

Despite our personal preference for global solutions to the global climate change issue, there is an observable trend towards a decrease in multilateralism. Multilateralism seems to have lost momentum, and this has

obvious implications concerning the feasibility of the different options for connecting ETS schemes via a global agreement and/or a series of bilateral agreements. The present difficulty in achieving almost any agreement on global issues makes a worldwide ETS very unlikely at the moment. A similar, though less severe, problem may arise in the attempt to build a global network of regional/domestic ETS regimes. For this reason, bilateral agreements aimed at creating interacting ETS blocks seem the most viable option (if not the only option which is really feasible) towards scaling up the existing ETS regimes as an intermediate step towards a worldwide application.

In this regard, transatlantic cooperation could play a key role in promoting an ETS bilateral agreement. This might trigger a global movement in the same direction that would end up de facto extending ETS on a global scale. To this effect, the experience gained in the application of the comity principle to transatlantic cooperation, in particular in the antitrust field, should play a pivotal role and provide the needed humus to let the ETS cooperation flourish.

## References

---

- Anderson, Barry, and Di Maria, Corrado (2011), "Abatement and Allocation in the Pilot Phase of the EU ETS", *Environmental and Resource Economics*, Vol. 48, No. 1 (January), p. 83-103.
- Bellas, Allen S., and Lange, Ian (2011), "Evidence of Innovation and Diffusion Under Tradable Permit Programs", *International Review of Environmental and Resource Economics*, Vol. 5, No. 1, p. 1-22.
- Bodansky, Daniel (2010), "The Copenhagen Climate Change Conference: A Postmortem", *The American Journal of International Law*, Vol. 104, No. 2 (April), p. 230-240, <http://ssrn.com/abstract=1553167>.
- Borghesi, Simone (2011), "The European Emission Trading Scheme and Renewable Energy Policies: Credible Targets for Incredible Results?", *International Journal of Sustainable Economy*, Vol. 3, No. 3, p. 312-327. Also publ. in *FEEM Note di lavoro*, No. 141.2010, <http://www.feem.it/getpage.aspx?id=3557>.
- Borghesi, Simone, Cainelli, Giulio, and Mazzanti, Massimiliano (2012), "European Emission Trading Scheme and Environmental Innovation: An Empirical Analysis using CIS Data for Italy", *Giornale degli economisti*, Vol. 71, No. 1 (October), p. 71-97.
- Calel, Raphael, and Dechezleprêtre, Antoine (2012), "Environmental Policy and Directed Technological Change: Evidence from the European Carbon Market", *FEEM Note di lavoro*, No. 22.2012, <http://www.feem.it/getpage.aspx?id=4699>.
- EEA (2010), "Annual European Union greenhouse gas inventory 1990-2008 and inventory report 2010", *EEA Technical Reports*, No. 6/2010 (June), <http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2010>.
- EEA (2012a), "Annual European Union greenhouse gas inventory 1990-2010 and inventory report 2012", *EEA Technical Reports*, No. 3/2012 (May), <http://www.eea.europa.eu/publications/european-union-greenhouse-gas-inventory-2012>.
- EEA (2012b), "Approximated EU GHG inventory: early estimates for 2011", *EEA Technical Reports*, No. 13/2012 (October), <http://www.eea.europa.eu/publications/approximated-eu-ghg-inventory-2011>.
- EEA (2012c), "Greenhouse gas emission trends and projections in Europe 2012. Tracking progress towards Kyoto and 2020 targets", *EEA Reports*, No. 6/2012 (October), <http://www.eea.europa.eu/publications/ghg-trends-and-projections-2012>.
- Ellerman, A. Denny (2010), "The EU's Emissions Trading Scheme: A Prototype Global System?", in Joseph E. Aldy and Robert N. Stavins, eds., *Post-Kyoto International Climate Policy. Implementing Architectures for Agreement*, Cambridge and New York, Cambridge University Press, p. 88-118.  
Also publ. in *MIT Joint Program on the Science and Policy of Global Change Reports*, No. 170 (February 2009), <http://globalchange.mit.edu/research/publications/993>.

Ellerman, A. Denny, Convery, Frank J., and Perthuis, Christian de (2010), *Pricing Carbon. The European Union Emissions Trading Scheme*, Cambridge and New York, Cambridge University Press.

Ellerman, A. Denny (2013), "The Shifting Locus of Global Climate Policy Leadership", *Transworld Working Papers*, No. 16 (25 March), <http://www.transworld-fp7.eu/?p=1108>.

EU (2003a), *Directive 2003/4/EC on public access to environmental information and repealing Council Directive 90/313/EEC*, 28 January, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=celex:32003l0004:en:not>.

EU (2003b), *Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC*, 13 October, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=celex:32003l0087:en:not>.

EU (2008), *Directive 2008/101/EC amending Directive 2003/87/EC so as to include aviation activities in the scheme for greenhouse gas emission allowance trading within the Community*, 19 November, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=celex:32008l0101:en:not>.

EU (2009), *Directive 2009/29/EC amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community*, 23 April, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=celex:32009L0029:en:not>.

European Commission (2012), *FAQ: Linking the Australian and European Union emissions trading systems*, MEMO/12/631, 28 August, [http://europa.eu/rapid/press-release\\_MEMO-12-631\\_en.htm](http://europa.eu/rapid/press-release_MEMO-12-631_en.htm).

Frunza, Marius-Cristian, Guegan, Dominique, and Thiebaut, Fabrice (2010), "Missing trader fraud on the emissions market", *Documents de travail du Centre d'Economie de la Sorbonne*, No. 2010.71, <ftp://mse.univ-paris1.fr/pub/mse/CES2010/10071.pdf>.

Kruger, Joseph, Oates, Wallace E., Pizer, William A. (2007), "Decentralization in the EU Emissions Trading Scheme and Lessons from Global Policy", *Review of Environmental Economics and Policy*, Vol. 1, No. 1 (Winter), p. 112-133.

Maier, Harold G. (1996), "Jurisdictional Rules in Customary International Law", in Karl M. Meessen, ed., *Extraterritorial Jurisdiction in Theory and Practice*, London, Kluwer Law International, p. 64-102.

Michaelowa, Axel (2012), "Can New Market Mechanisms Mobilize Emissions Reductions from the Private Sector?", *Harvard Project on Climate Agreements - Discussion Paper ES*, No. 12-1 (November), <http://belfercenter.ksg.harvard.edu/publication/22496>.

Montini, Massimiliano (2011), "Reshaping Climate Governance for Post-2012", *European Journal of Legal Studies*, Vol. 4, No 1 (Summer), p. 7-24, <http://www.ejls.eu/8/98UK.pdf>.

OECD (2011), "Emission permits and competition", DAF/COMP(2010)35, 6 June, <http://www.oecd.org/daf/competition/sectors/48204882.pdf>.

Rogge, Karoline S., Schneider, Malter, and Hoffmann, Volker H. (2011), "The innovation impact of the EU Emission trading system: findings of company case studies in the German power sector", *Ecological Economics*, Vol. 70, No. 3 (January), p. 513-523.

Story, Joseph (1883), *Commentaries on the Conflict of Laws, foreign and domestic, in regard to contracts, rights, and remedies, and especially in regard to marriages, divorces, wills, successions, and judgments*, Boston, Little, Brown.

US Supreme Court (1895), *Hilton v. Guyot*, 159 US 113, <http://supreme.justia.com/cases/federal/us/159/113/case.html>.

## THE PROJECT

In an era of global flux, emerging powers and growing interconnectedness, transatlantic relations appear to have lost their bearings. As the international system fragments into different constellations of state and non-state powers across different policy domains, the US and the EU can no longer claim exclusive leadership in global governance. Traditional paradigms to understand the transatlantic relationship are thus wanting. A new approach is needed to pinpoint the direction transatlantic relations are taking. TRANSWORLD provides such an approach by a) ascertaining, differentiating among four policy domains (economic, security, environment, and human rights/democracy), whether transatlantic relations are drifting apart, adapting along an ad hoc cooperation-based pattern, or evolving into a different but resilient special partnership; b) assessing the role of a re-defined transatlantic relationship in the global governance architecture; c) providing tested policy recommendations on how the US and the EU could best cooperate to enhance the viability, effectiveness, and accountability of governance structures.

## CONSORTIUM

Mainly funded under the European Commission's 7th Framework Programme, TRANSWORLD is carried out by a consortium of 13 academic and research centres from the EU, the US and Turkey:

Istituto Affari Internazionali, *Coordinator*  
German Marshall Fund of the United States  
University of Edinburgh  
Free University of Berlin  
Fondation Nationales des Sciences Politiques  
Sabanci University of Istanbul  
Chatham House  
European University Institute  
University of Siena  
Charles University of Prague  
University of Mannheim  
TNS Opinion  
American University of Washington

## ADVISORY BOARD

Shaun Breslin, University of Warwick  
Zhimin Chen, Fudan University, Shanghai  
Renato G. Flores Jr., FGV, Rio de Janeiro  
Ranabir Samaddar, Mahanirban Calcutta Research Centre  
Dmitri Trenin, Carnegie Moscow Center  
Stephen Walt, Harvard University

[WWW.TRANSWORLD-FP7.EU](http://WWW.TRANSWORLD-FP7.EU)