

EU ETS: Upholding the Carbon Price Without Incidence of Carbon Leakage

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Abstract

The internalisation of the social cost of carbon carries regulatory implications, the most significant of which is the loss of competitiveness in both domestic and international markets. The European Union's ambition for leadership in a global attempt to tackle climate change has exposed its industries to competitive disadvantages. In response to this threat, measures aimed at levelling the playing field between foreign and domestic businesses were enacted in Directive 2009/29/EC. However, whether all of these measures will prove effective remains to be seen, as free allocation of allowances and financial compensation to energy-intensive industries will raise the overall cost to society without conferring any tangible benefits to the environment. On the other hand, the enactment of border adjustment measures (BAMs) is an idea that is not currently favoured by legislators, despite the fact that this option holds significant promise in terms of resolving the problem of carbon leakage.

Keywords: carbon leakage, carbon price, carbon trading, carbon emissions, border adjustment measures, EU ETS

1. Introduction

Since policymakers have contemplated climate change as 'a market failure on the greatest scale the world has ever seen', the establishment of a price for carbon has been recommended as essential to correct such a market

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imperfection.¹ The social cost of greenhouse gas emissions (externalities), which had not previously been factored into final commodity prices, are now accounted for by imposing a price on carbon in the European Union (EU). It is beyond doubt that complete decarbonisation of modern economies could only be triggered through a sufficiently high carbon price, imposed by taxation, emissions trading or conventional regulation.

Emissions trading is currently seen by EU policy makers as the most appropriate policy tool for an explicit formation of the carbon price. It has recently gained popularity and became more widely used as an instrument for achieving carbon reductions in the most cost-effective way across the globe.² Essentially, emissions trading is designed to make implementation and compliance with environmental standards more affordable and practicable for operators enjoying different abatement potential (and thus facing variable costs).³ The economic *rationale* of the mechanism is premised primarily on the encouragement of participants with lower abatement costs to achieve greater carbon savings and sell the resultant excess of permits to others for whom abatement is less practical and where costs are higher.⁴ The improved cost efficiency stems from the flexibility in the methods of compliance that emissions trading affords to its participants.⁵ Such flexibility is purported to lead to predictable outcomes based on efficiency and political and economic convenience, thereby enabling the so-called economic incentive instruments to transcend the achievements of conventional regulation. At least in theory, better results should be delivered in the form of innovation and feasibility of deeper environmental commitments.⁶

Notwithstanding the virtues of emissions trading as a market-based mechanism, the European Union Emission Trading Scheme (EU ETS) has attracted much criticism from its very inception. This criticism has carried a substantial loss of confidence in the merits of the mechanism. The UK House of Commons Environmental Audit Committee for instance has identified a number of factors contributing to the unsatisfactory outcome of Phases I and II of the EU ETS: an inadequate cap on emissions; an over-allocation of allowances; excessive new entrants' reserves; and over-reliance on the use of offset

- 1 N Stern, *The Economics of Climate Change: The Stern Review* (CUP 2007) pt I, 25 and ch 2.7.
- 2 As a result, the Chicago Climate Exchange, the European Climate Exchange and the Tokyo Climate Exchange are just few of the emerging trading platforms where carbon credits and derivatives thereof are exchanged.
- 3 R Mason, 'Joint Implementation and the Second Sulphur Protocol' (1995) 4 *Review of European Community and International Environmental Law* 296.
- 4 R Baldwin, 'Regulation Lite: the Rise of Emissions Trading' (2008) LSE Law, Society & Economy Working papers, 5 <http://www.lse.ac.uk/collections/law/wps/WPS2008-03_Baldwin.pdf> accessed 28 October 2011.
- 5 C Banet, 'The Use of Market-Based Instruments in the Transition from a Carbon-Based Economy' in D Zillman and others (eds), *Beyond the Carbon Economy* (OUP 2008) 207.
- 6 Baldwin (n 4).

credits.⁷ However, the key reason for the mechanism's inability to reduce the carbon intensity of covered installations is not due to these internal factors, but rather to an external one—termed 'carbon leakage'.⁸ The above 'internal' factors are largely a reflection of the risk of carbon leakage, which is the actual reason for the inability of the EU ETS to induce significant carbon reductions. Initially, there were also other challenges of a purely technical nature: insufficient data; short deadlines; and a lack of coordination.⁹ Disregarding such drawbacks, the EU officially started its pilot project in 2005 based on substantial concessions in its efficiency. Since the allocation of allowances is commonly perceived as a 'distributional exercise', which determines the ownership of 'an economic asset',¹⁰ the cap had to be inflated, allowances over-allocated and the use of offset credits generously provided for in order to alleviate the impact of the mandatory cap and trade system. The primary concern of the Member States was to avoid compromising the competitiveness of domestic industries in the process of instituting the new policy (ie to prevent carbon leakage). Unfortunately, these effects have to date been prolonged and will be carried forward into the future, being a convenient political manoeuvre to avoid tensions with third countries and regulated industries.¹¹ The stakeholders' public consultation under article 10(b) of the Directive shows a consistent preference on the part of regulated industries for free allocation of allowances on the basis that the EU ETS is viewed as a threat to their competitive edge.¹²

Precautions against carbon leakage have nevertheless been undertaken within the EU ETS in an effort to uphold carbon prices in future commitment periods. The post-2013 amendments in the EU ETS, introduced by Directive 2009/29/EC (the 'Directive'), have laid the ground for deeper emissions cuts through sustaining a higher carbon price.¹³ To this end, the EU has introduced

7 The House of Commons Environmental Audit Committee, *The Role of Carbon Markets in Preventing Dangerous Climate Change*, Fourth Report of Session 2009–2010 (HMSO 2010) 22.

8 Recital 24 of Council Directive (EC) 2009/29/EC 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 [2009] OJ L140/63.

9 A Ellerman, F Convery and C Perthuis, *Pricing Carbon: The European Emissions Trading Scheme* (CUP 2010) 37–48.

10 P Zapfel, 'A Brief but Lively Chapter in EU Climate Policy: The Commission's Perspective' in A Ellerman, B Buchner and C Carraro (eds), *Allocation in the European Emission Trading Scheme* (CUP 2007) 28–31.

11 R Eckersley, 'The Politics of Carbon Leakage and the Fairness of Border Measures' (2010) 24 *Ethics and International Affairs* 383.

12 Documents available at: <<http://ec.europa.eu/environment/climat/emission/carbon.en.htm>> accessed 28 October 2011. See also: Corporate Europe Observatory, 'Industry Lobbying on Emissions Trading Scheme Hits the Jackpot' (21 May 2010) 5–6, <http://trends.levif.be/economie/attachments/co2_rapportceo.mai2010.pdf?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1266553330811&ssbinary=true> accessed 28 October 2011.

13 Directive 2009/29/EC (n 8).

specific unilateral precautions employed to prevent carbon leakage from risk-exposed industries in the Community:

- (i) Free allocation of allowances under article 10a(12) of the Directive;
- (ii) Financial measures in favour of energy-intensive industries under article 10a(6) of the Directive; and
- (iii) Border adjustment measures under article 10b(1) of the Directive.

However, the current provision containing precautions against carbon leakage should not be viewed as a way out of the complexities that a unilateral implementation of pro-environmental policies on the part of the EU may produce. First, free allocation of allowances is an intrinsically misguided method for the distribution of allowances. It is commonly employed in the initial phase of a cap-and-trade mechanism for the purpose of softening the regulatory impact on regulated sectors. Subsequently, once the system has been introduced, free allocation impairs the mechanism's efficiency and should be abandoned.

Secondly, financial support to energy-intensive industries, disadvantaged by higher electricity prices, may prove to be an inadequate measure, if provided at all. Mandatory auctioning of allowances for the electricity sector at 100% will inevitably increase final electricity prices post-2013 due to the position of the sector itself. The electricity sector generally enjoys the 'privilege' of purchasing allowances and passing the costs onto its consumers without much need for abatement. Hence, the burden of compliance with the EU ETS will be transferred onto energy-intensive consumers, who will remain exposed to the risk of carbon leakage. Financial support to alleviate the cost burden on energy-intensive consumers will neutralise abatement incentives in these industries and, conversely, a lack of adequate support will only aggravate their competitive position.

Ultimately, the only solution to restore the EU ETS' constructive influence to abate carbon emissions and to avoid carbon leakage is the enforcement of border adjustment measures (BAMs). At this stage, analysis will only be speculative because to date the impact of BAMs has been subject to a limited analysis, resulting in lack of sufficient data from which to draw. In light of the above, the first part of this article will outline the origins of carbon leakage, which is a fairly straightforward occurrence. Then, the EU precautions against carbon leakage will be examined, emphasising the free allocation of allowances, financial support to energy-intensive sectors and BAMs. Sectoral agreements under the EU ETS Directive will not be looked into as they are the outcome of bilateral arrangements—not unilateral measures undertaken by the EU to protect its domestic industries. Finally, the conclusion will suggest an appropriate remedy against carbon leakage from this portfolio of options.

2. Carbon Leakage: Defining the Problem

Carbon leakage is 'an increase in emissions outside a region as a direct result of the policy to cap emissions in this region.'¹⁴ This phenomenon undermines climate change mitigation efforts in countries adopting policies to prevent further environmental degradation. Pricing the environment only in certain parts of the world by way of policy intervention is likely to drive the relocation of polluting industries to regions where the environment is available for free. This principle holds true as environmental charges are viewed as a production cost on the balance sheet of manufacturing operations, alongside labour, cost of capital and other operating costs. Different countries put a different price tag on the environment depending on how much they value the quality of it. This price is established by way of state intervention in the form of legislative policies to restrict the employment of environmental factors as inputs of production. If the price varies across the globe as a result of uneven environmental policies and it results in cost implications exclusively for industries in carbon capped (regulated) countries, such industries have an incentive to relocate dirty and inefficient manufacturing sites abroad while exporting final products back into the capped country or region. Carbon-intensive industries, like any other industries, generally strive to minimise regulatory compliance costs.

Carbon leakage may occur in different forms. The relocation of manufacturing is not the only outcome that may stem from an unevenly constrained carbon environment—it is rather the most visible one. Alternatively, carbon-intensive operators located in capped regions may incur a loss of market share as products originating from regions without a cap on emissions are more competitive, since their environmental costs have not been factored into commodity prices.¹⁵ The lack of competitiveness of domestic products versus imports may induce 'consumer price arbitrage'.¹⁶ Finally, the microeconomics of future investment decisions may also be influenced as investments enticed by lower operational costs are more likely to take place in countries averse to placing environmental constraints on industries.¹⁷

14 J Reinaud, 'Climate Policy and Carbon Leakage' (IEA 2008) 8 <<http://www.iea.org/papers/2008/Aluminium.EU.ETS.pdf>> accessed 28 October 2011.

15 House of Lords Committee on the European Union, *Report on the Revision of the EU ETS* (Session 2007–2008) 25 November 2008, ch 5 <<http://www.publications.parliament.uk/pa/ld200708/ldselect/ldecom/197/19708.htm>> accessed 28 October 2011.

16 The concept of 'consumer price arbitrage' is well-known in the context of value added tax evasion. It refers to the capability of consumers to discriminate against domestic products through cross-border shopping from other countries under a favorable tax regime. It is the asymmetry of tax regulations (ie tax rates) that allows consumer price arbitrage. See eg B Genser, 'Coordinating VATs between EU Member States' (2003) 10 *International Tax and Public Finance* 753.

17 J Reinaud, 'Issues behind Competitiveness and Carbon Leakage: Focus on Heavy Industries' (OECD/IEA 2008) 56 <<http://www.iea.org/papers/2008/Competitiveness.and.Carbon.Leakage.pdf>> accessed 28 October 2011.

Ironically, the ground for such dualistic treatment of the environment has been laid in the framework of the international climate change regime. The United Nations Framework Convention on Climate Change (UNFCCC) and Kyoto Protocol have both been underpinned by the principle of common but differentiated responsibility, which, in practice, has been translated into 'different legal obligations on states'.¹⁸ The general criteria for grouping participating countries into two separate clusters are their historic responsibility, in terms of contribution to the problem, and technological or financial ability to tackle climate change. For reasons of equity and fairness, only developed countries (Annex I countries) have committed to quantitative emissions reductions and timetables for their achievement, whereas developing countries have no assigned targets to curb greenhouse gas (GHG) emissions.¹⁹

On the other hand, economic realities present a different outlook. In October 2003, a Goldman Sachs economist coined the term 'BRICs', describing the informal alliance between Brazil, Russia, India and China. What is peculiar to these four, formally speaking, developing countries is the level of their industrialisation, which is very soon expected to outstrip that of the western world.²⁰ Brazil and Russia enjoy tremendous natural resource endowments, whilst India and China possess virtually unlimited manufacturing capacity and human resources. To date, the rest of the world has already become heavily reliant on these countries for imports of cheap production ranging from personal and household items to industrial output. Other countries holding comparable potential should not be ignored either, most notably: Turkey; Mexico; Malaysia; Thailand and South Africa.²¹

In contrast, the UK's recent experience has demonstrated that its position within the top 10 manufacturing economies is increasingly contested by fast-growing emerging economies, including the BRICs. Although considered to be the 'workshop of the world in the late 19th century' the UK has, since the 1980s, been sliding backwards within the frontlines of the economic output league table.²² Meanwhile, environmental credentials look impressive as government emissions forecasts have placed the UK on the trajectory of achieving approximately a 36% emissions reduction below 1990 levels by 2020.²³ The UK's emissions will therefore be significantly below the ambitious EU-wide target for 2020. However, it is questionable how legitimate it would be to say that the UK's carbon savings have all been genuine. Pollution—a by-product

18 *ibid* 287.

19 Kyoto Protocol to the United Nations Framework Convention on Climate Change (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 148, art 3.

20 M Kobayashi-Hillary, *Building a Future with BRICs: The Next Decade for Offshoring* (Springer 2008) 2.

21 *ibid*.

22 P March, 'UK Slips in League Table of Top Global Producers' *Financial Times* (London, 21 June 2010) 2.

23 F Harvey, 'Target for Emissions Cuts to be Exceeded' *Financial Times* (London, 8 June 2010) 3.

of manufacturing—has decreased more as a result of economic determinants (cheaper imports replacing domestic manufacturing for example) rather than actual carbon abatement. Expert studies support the view that the UK has managed to reconcile its environmental objectives with levels of consumption primarily by having carbon-intensive industries relocated or replaced by import commodities.²⁴

Contrary to the implied concern about the consequences from the risk of carbon leakage, no actual leakage from the EU has been detected so far. Figures on carbon leakage have been drawn predominantly from modelling of different leakage scenarios, which forecast that carbon leakage could materialise in any amount from 2% to 21% economy-wide for Annex I countries under the Kyoto Protocol.²⁵ It is worth noting that the results vary as much as the various assumptions regarding the factors used for modelling purposes. On the other hand, a number of Carbon Trust reports, for instance, predict 'a modest degree of leakage', where the most carbon-intensive manufacturers would incur small value added increases.²⁶ The apparent conclusion, in light of these findings, is that the overall economic impact of the policy to reduce carbon emissions seems rather trivial and could very well be regarded as immaterial.²⁷ However, breaking down these economy-wide figures at industry level reveals a contrasting picture. Some sectors are particularly vulnerable to value increases of resource inputs whilst others incur insignificant value increases, therefore, offsetting the aggregate effect to lower levels when the leakage ratio is averaged. Models indicate that the production of aluminium and cement is particularly exposed to value increases when analysed at a disaggregate level. These two sectors face a potential fall in production by 14–25% due to higher end prices and decreasing demand.²⁸ The magnitude of such results urges serious political caution.²⁹

Notwithstanding suspicions that the regulatory impact may be exaggerated, experts find it plausible to assume that the carbon price is meant to exceed modelling figures and therefore the lack of a level international playing field will result in escalating pressure on industries to move abroad or close

24 D Helm, R Smale and J Phillips, 'Too Good to be True? The UK's Climate Change Record' (2007) <<http://www.dieterhelm.co.uk>> accessed 28 October 2011.

25 J Burniaux and J Martins, 'Carbon Emission Leakages: A General Equilibrium View', ECO/WKP(2000)15, OECD Working Papers <<http://www.oecd.org/dataoecd/13/0/1883806.pdf>> accessed 7 December 2011. See also: M Babiker, 'Climate Change Policy, Market Structure and Carbon Leakage' (2005) 65 *Journal of International Economics* 441.

26 Carbon Trust, 'EU ETS Impacts on Profitability and Trade: A Sector by Sector Analysis' (2008) 33.

27 The above reports are premised on the assumption that the carbon price does not exceed €40 per tCO₂.

28 S Monjon and P Quirion, 'Addressing Leakage in the EU ETS: Border Adjustment or Output-based Allocation?' (2011) *Ecological Economics* 14.

29 *ibid.*

down.³⁰ Given the current estimates, the problem of carbon leakage is rather uncertain in the future. However, this does not absolve policy makers from the necessity of reconsidering measures safeguarding the economy and the environment. In order to provide confidence and certainty for investors, suggestions for incentivising expansion in truly low-carbon technologies, such as renewable energy, nuclear power and carbon capture and storage, assume a stable carbon price of above €100/tCO₂.³¹ Without necessary precautions taken against carbon leakage, these policies will merely deliver the opposing outcome from an economic perspective and will further aggravate environmental problems. The answer as to why a price of €100/tCO₂ has not yet been secured has already been straightforwardly suggested above. A price of €100/tCO₂ will raise serious competitiveness concerns, especially when the developing world, including BRICs assigns a value of zero to the use of the atmosphere. This creates a typical standoff situation whereby carbon prices cannot increase because of the risks of carbon leakage, whereas low levels of carbon leakage are not a legitimate reason for implementing robust counter-leakage measures to secure the correct prices. Hence, the biggest challenge facing the European Commission is the creation of a level playing field between competing industries, located inside and outside the EU, in order to uphold the carbon price—the precursor to effective enforcement of its environmental policy.

It should also be recalled that we are not dealing with a single-sided problem. Despite the fact that minor rates of carbon leakage could be economically acceptable, they cause an environmental impact, which is in no way correlated to an economic one. Small-scale leakage from a carbon-intensive industry under the EU ETS could produce a substantial increase in emissions in third countries. Manufacturing relocations, market share losses or new investment patterns will often leverage emissions growth due to the relatively 'higher energy intensity' of developing countries' economies.³² This provides a compelling reason to pursue zero- or near-zero carbon leakage targets by carbon-constrained countries in order to protect the atmosphere from the effects of industrial migration of any magnitude.

Unfortunately, very little reliance could be placed on the 'first best option'³³—forging the indispensable international agreement and committing economically advanced countries to comparable carbon targets. In this context, the option of undertaking dissimilar pledges by key players in the climate negotiation process remains the only realistic resort available at the moment to curb carbon emissions. However, the latter approach implies unilateral

30 Eckersley (n 11) 376.

31 Environmental Audit Committee (n 7) 22.

32 J Pan, J Phillips and Y Chen, 'China's Balance of Emissions Embodied in Trade' (2008) 24 Oxford Review of Economic Policy 368.

33 Carbon Trust, *Tackling Carbon Leakage* (2010) 5.

measures to even out the unequal treatment of the environment, therefore preventing the risk of carbon leakage.

3. Free Allocation of Allowances to Sectors at Risk of Carbon Leakage

The first of four EU measures to even out the carbon playing field is free allocation of allowances to sectors at risk of carbon leakage. Article 10a (12) of the Directive provides for a free allocation of allowances at 100% to all sectors exposed to carbon leakage in an effort to suppress the regulatory impact that the EU ETS may produce on industries most vulnerable and exposed to international competition.³⁴ An exception of this kind could significantly undermine the progressive steps taken to enhance the efficiency of the system and compromise the objectives of the EU scheme, namely—the achievement of necessary carbon reductions.

Pursuant to the general criteria prescribed by article 10a (14), (15) and (16) of the Directive, the Commission adopted a list of sectors deemed to be at risk of carbon leakage, which are eligible to benefit from free allocation of allowances.³⁵ In line with received academic opinion, any supporting measures granting certain privileges under the EU ETS have to pass a number of tests in order to be legally and politically acceptable. To legitimise a given measure, it should, first and foremost, be environmentally effective.³⁶ As the Stern Review has generally concluded, any allocation methodologies distributing allowances for free could impair the effectiveness and slow down the achievement of overall objectives of emissions trading mechanisms. Free allocation for instance further continues the incidence of ‘windfall profits’ generated through over-allocation of allowances.³⁷ It has already been established that allowances distributed for free are converted into net cash flows (ie windfall profits) through the secondary carbon market or the pass-through rate of carbon opportunity cost.³⁸ One way of overcoming these loopholes is to resort

34 H Asselt and F Biermann, ‘European Emissions Trading and the International Competitiveness of Energy-Intensive Industries’ (2007) 35 *Energy Policy* 500.

35 Commission Decision (EU) 2010/2/EU determining, pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a list of sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage [2010] OJ L1/10; Note that the list contains EU ETS participating and non-participating sectors. The rationale for including the latter is the indirect costs incurred by energy-intensive industries through higher electricity prices. This interconnection will be analysed in the next section.

36 Asselt and Biermann (n 34) 498.

37 The Stern Review, pt IV (n 1) para 15.4.

38 Ellerman and others (n 9) ch 4. European Union Allowances (EUAs) represent generation costs that are ultimately passed through in final electricity prices regardless of whether they have been allocated for free or auctioned. Alternatively, carbon allowances may be sold on the secondary carbon market. By not selling its allowances on the market, a power

to benchmarking as a principle of free allocation. This was proposed by the Commission and subsequently enacted in article 10a (1) and (2) of the Directive. The provisions have been further elaborated in secondary EU legislation.³⁹

Benchmarking is essentially the process of defining the best available standards. In the framework of the EU ETS, these are product-based standards, which serve as a common denominator applied to all products of manufacture. The benchmarks establish the amount of embedded carbon permissible as a gold standard per unit of production. Benchmarks are designed to reflect the 'average performance of the 10% most efficient installations in a sector'.⁴⁰ Accordingly, a product benchmark setting the corresponding emission factor for each unit of output is multiplied by the entire output of an individual installation and thereby its allowances for process emissions determined. In the cement industry for example, the products chosen as benchmark products are grey cement clinker and white cement clinker—the base products of cement—having corresponding benchmark values of 766 kg and 987 kg of CO₂ per tonne of clinker.⁴¹ These values are representative of the most efficient techniques for producing grey or white cement.⁴² Therefore, every operator manufacturing grey cement clinker for example, irrespective of how product-efficient this is, will be allocated a 0.766 allowance for free for each tonne of produced clinker. If the manufacturer in question emits more than 766 kg of CO₂ per tonne of clinker, it would have to purchase additional allowances for the remainder of the released emissions up to its actual emission rate per unit of output. The use of benchmarks therefore 'rewards' producers who have implemented cutting edge technology into their operations.⁴³ As the Commission has noted, it will only be the most efficient installations that will enjoy the opportunity of having all its required allowances allocated for free.

Another guarantee, ensuring free allocation in the strictest terms, is the *ex ante* requirement. This is the second component of the benchmark. Under the EU ETS, Community-wide benchmarking enables account to be taken of the average product output of the top 10% most greenhouse-gas efficient operators in each individual sector in the years from 2005–08 and 2009–10. The *ex ante* requirement mandates exclusively the inclusion of historical activity

generator therefore incurs an opportunity cost. The opportunity costs equal the proceeds that have been lost by surrendering the allowance for compliance instead of trading it.

39 Commission Decision (EU) 2011/278 determining transitional Union-wide rules for harmonised free allocation of emissions allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council [2011] OJ L130/1.

40 Art 10a (2) of Directive 2009/29/EC (n 8).

41 See Commission Decision 2010/2/EU (n 35) 36, annex I.

42 Fraunhofer, Ecofys and Öko-Institut, 'Methodology for the Free Allocation of Emissions Allowances in the EU ETS post 2012' <<http://ec.europa.eu/clima/policies/ets/benchmarking/studies.en.htm>> accessed 31 October 2011, 68.

43 The Stern Review, pt IV (n 1) 334.

production into benchmarking, as opposed to projected emission production rates. Historical production emissions will not take into account any future increases and therefore operators will remain constrained by the production output in the past.⁴⁴ Thus, *ex ante* benchmarking has become the preferred allocation method. Better environmental efficiency of free allocation is expected and the weaknesses of its predecessor—grandfathering, allowing for the over-supply of allowances—should be overcome. However, whether benchmarking will prove effective in practice can only be assessed in the course of the third compliance period—from 2013 onwards.

Overall, the amended Phase III allocation method will evidently be more restrictive compared to the previous one. Nevertheless, the system is nowhere near perfect despite the numerous improvements, which have taken place in the most fundamental of all aspects—the allocation method. At the outset, benchmarking is incomplete and difficult to compile. As article 10a (1) specifies, it is to be determined ‘to the extent feasible’. A major problem in this respect is how a product is defined in order to devise the respective benchmark.⁴⁵ Premising a product-benchmark on the ‘best available technology’ does not seem to be the most appropriate yardstick, especially when ‘product technologies, operating conditions and other circumstances’ differ substantially from one operator to another.⁴⁶ This methodology will inevitably stir up fairness issues among producers operating under the same benchmark and it may produce an unequal distributional impact.⁴⁷ In addition, whenever benchmarks have not been developed, fall-back approaches will apply, comprising of heat and fuel benchmarks, as well as grandfathering for process emissions as the only feasible option remaining.⁴⁸ In this way, fall-back approaches will cover approximately 25% of the EU ETS-capped emissions, which only serves to highlight the incompleteness of benchmarking.⁴⁹

Furthermore, it is an extremely delicate matter to select an appropriate pivotal point for benchmark calculations in the current economic climate. The period of 2005–09 had been proposed as a reference for the determination of the *ex ante* limits. It had been emphasised that the first part of this period (2005–07) was ‘of high economic growth’ thereby planting the potential risk of over-allocation in Phase III due to the current economic slump. This may nevertheless be offset by the second part of the period (2009–10) when the

44 Directive 2009/29/EC (n 8), art 10a (1) and (2); see also Fraunhofer and others (n 42) 35; see also Commission Decision 2010/2/EU (n 35).

45 Fraunhofer and others (n 42) s 4.

46 Carbon Trust, *Cutting Carbon in Europe: The 2020 Plans and the Future of the EU ETS* (2008) 12.

47 *ibid*; see also Explanatory paper prepared by DG Climate Action for MEPs, *Explanatory Paper to Draft Commission Decision on Free Allocation Rules for the Emissions Trading Scheme* (8 February 2011) 2 <http://ec.europa.eu/clima/policies/ets/benchmarking/docs/explanatory_paper.en.pdf> accessed 31 October 2011.

48 Fraunhofer and others (n 42) s 4; see also Commission Decision 2010/2/EU (n 35).

49 DG Climate Action for MEPs (n 47).

EU economy started to slow down. The Commission conferred an additional advantage to incumbent installations as it decided to allow Member States to determine historical activity levels on the basis of median emission figures from one of the two periods, whichever are higher: 2005–08 or 2009–10.⁵⁰ On average, it is crucial whether business-as-usual emissions will rise significantly above pre-crisis levels in the coming three to four years.⁵¹ Predictions of this kind are a difficult exercise. In all likelihood, the European economy will maintain its faltering recovery in the foreseeable future.⁵² Therefore, such weaknesses in the mechanisms, even slightly pronounced, cast certain doubts on tangible improvements of the EU scheme. Before emissions start to grow due to returning production levels from 2005 to 2008, the historical activity level factor (*ex ante*) will not come into play. As a result, the atmosphere surrounding the EU ETS is still largely charged with the ‘nagging sense that free allocation does not provide proper incentives’.⁵³

The scale of the problem is further aggravated by the exemption provided for the most carbon-intensive sectors exposed to carbon leakage.⁵⁴ Among them, for instance, are the refining of petroleum, manufacture of glass, ceramics, pulp, paper, chemicals, steel, cement and aluminium.⁵⁵ These industries are eligible to receive their process-related allowances at 100% for free. According to Carbon Trust estimates, the last three of these sectors are exclusively responsible for approximately a third of all EU ETS-capped emissions.⁵⁶ Therefore, the most carbon-intensive industries, holding a substantial part of the EU ETS total emissions, will remain largely unaffected by regulation. Only industries, where benchmarks apply, may feel the exertion of a very light regulatory touch. The effect of such regulation is likely to be well cushioned by economic factors conditioning lower emissions in the coming years.⁵⁷

Conversely, a cap on pollution will inevitably be observed in theory, irrespective of the allocation method, as the cap imposes an overall limit on emissions. Unfortunately, experience has shown that the EU ETS has not worked quite as planned. In the second period of the EU ETS, a large number of installations were given more allowances than they really needed.⁵⁸ Insofar as this surplus could be transferred into Phase III, its overall effectiveness as an environmental policy tool should therefore be assessed against the combined aggregate effect of the free allocation based on *ex ante* benchmarks, banking of

50 Commission Decision 2010/2/EU (n 35) art 9.

51 Fraunhofer and others (n 42) 35.

52 R Atkins, S Pignal and Ch Giles, ‘Germany Powers Eurozone Growth’ *Financial Times* (London, 13 May 2011) <<http://www.ft.com/intl/cms/s/0/04c0a0da-7d2e-11e0-bc41-00144feabdc0.html#axzzlcwuSB5t3>> accessed 6 November 2011.

53 Ellerman and others (n 9) 77.

54 Fraunhofer and others (n 42) Appendix C.

55 Commission Decision 2010/2/EU (n 35).

56 Carbon Trust (n 33) 2.

57 FT reporters ‘Global Alert over Faltering Economy’ *Financial Times* (London, 2 July 2010).

58 Ellerman and others (n 9) 158.

surplus allowances from Phase II, use of offset credits and the actual cost of abatement. All of these factors taken together will most likely contribute to the maintenance of allowances oversupply and windfall profits, thus substantially hampering or at least slowing down progress towards achieving carbon reductions.

In support of the above, expert surveys have confirmed bleak prospects for Phase III. Point Carbon, analyst and information provider, examined the market behaviour of some EU ETS participants and revealed that 51% of respondents had sold allowances they had held in surplus due to reasons of 'expected long positions'⁵⁹ in the future, a 'good price' for EU allowances (EUAs) or 'need for cash.'⁶⁰ As the survey has indicated, it is the cement, lime, glass and pulp and paper sectors, which are commonly on the selling side (ie generating the surplus). On the buying side, it is the power companies seeking opportunities to 'hedge' against carbon price volatility and bank EUAs for 2013 onwards.⁶¹ The overlap between sectors exposed to carbon leakage and major EUA sellers is not hard to notice. Evidently, operators from some of the most carbon-intensive sectors, which are exposed to carbon leakage and will therefore receive their needed allowances for free, have been selling the excess in their stock of allowances. Logically, one may question whether we offer the appropriate incentives to sectors, which are allegedly exposed to the pressure of international competitiveness and face no net cost for a large part of their abatement. The advantages conferred are notably abused.

Therefore, free allocation of allowances even based on *ex ante* benchmarking may ultimately facilitate inflation of the cap, lowering the carbon price and thereby result in insufficient abatement. Thus, free allocation under article 10a (12) of the Directive and environmental effectiveness are two intrinsically incompatible and mutually exclusive notions. Reducing the regulatory impact of the environmental policy to protect vulnerable sectors of the economy continuously comes at the expense of achieving the planned carbon reductions. Taking such precautionary steps may only marginalise but not eliminate windfall profits. Free allocation, even when backed up by benchmarking, remains counter-productive to the effective abatement. Thus, the playing field should not be levelled by compensating for these sectors with free allowances and a solution for the protection of sectors exposed to the risk of carbon leakage should be looked for elsewhere, as will be proposed below.

59 'A long position' is commonly understood as holding a surplus of carbon allowances with the expectation that their value will increase.

60 E Tvinnereim and K Røine, 'Carbon 2010 - Return of the Sovereign' (Point Carbon 2010) 8 <<http://www.pointcarbon.com/1.1414367>> accessed 31 October 2011.

61 *ibid.*

4. Financial Compensation by Member States

It has been acknowledged that European energy-intensive sectors, for which electricity constitutes a large proportion of their production costs, will, as with the basic material industries mentioned above, be exposed to the risk of carbon leakage.⁶² Power generators, covered by the EU ETS, can pass CO₂-related costs in electricity prices onto energy consumers, such as energy-intensive manufactures. The latter are, in turn, unable to pass these costs onto their final customers given international competitive constraints. Their competitive position *vis-a-vis* foreign producers will be thereby impaired. As a result, Member States have been granted the discretion to compensate operators for increases in electricity prices.⁶³ The purpose of such discretion is to avoid carbon leakage from these energy-intensive industries due to higher energy costs.

In order to fully understand the rationale for introducing financial measures, it is necessary to assess the position of the power-generating sector against this provision, as it seems to enjoy a particular standing in the de-carbonisation of the European economy. Under specific circumstances, power generators may pass on CO₂-allowances costs, irrespective of whether these allowances have been allocated for free or auctioned. This, by itself, will deprive the power sector of genuine incentives for carbon abatement, as it may transfer the burden of CO₂-allowances costs onto electricity consumers—mainly the energy-intensive industries.⁶⁴ It should be recalled that the power sector faces little or no competition from outside the EU. Power generators may increase final electricity prices without incurring market share losses.⁶⁵ On the other hand, the position of energy-intensive customers is quite the opposite. They are very sensitive to price increases and could easily lose their market share since they are subject to strong international competition bearing no carbon costs on their balance sheet. Overall, passing on compliance costs has a dual effect—it deprives the electricity sector of abatement incentives and exposes energy-intensive industries to carbon leakage. In light of this, recompensing the latter is not an appropriate remedy as externalities are ultimately not factored into final prices.

Recent studies suggest that the entire performance of the EU ETS depends on compliance of the electricity sector with carbon reduction targets, as the power generation is the largest CO₂ producer of all sectors covered by the

62 Council Directive 2009/29/EC (n 8) recital 24.

63 Member States have been granted such discretion on grounds of art 10a (6) of Directive 2009/29/EC.

64 Commission Decision 2010/2/EU (n 35).

65 P Park, 'The Implementation of the Flexible Mechanisms of the Kyoto Protocol' (2006) 6 International Energy Law & Taxation Review 160.

scheme.⁶⁶ The generation of electricity from fossil fuels is responsible for 41% of global, energy-related CO₂ emissions.⁶⁷ Accordingly, the effectiveness of the EU ETS is dependent on the extent to which the price of carbon—respectively, the value of a carbon allowance or abatement action—is passed on to final consumers.⁶⁸ If there is a high pass-through rate (PTR) of CO₂-allowance costs, the power generators could transfer most of this burden onto the consumer. Abatement action would thus be avoided and the installation in question would at the same time remain in compliance with its carbon reduction targets. In cases of a high PTR, the risk of carbon leakage is much higher due to the cost pressure exerted on the energy-intensive manufactures, and vice versa (when the PTR is low these consumers are less affected). On the other hand, a low PTR of CO₂-allowance costs would force power plants to undertake emission abatement so as to retain a margin on their profits. The PTR of CO₂-allowance costs applied by European power generators is therefore the most crucial issue to be examined. Various analyses suggest that the PTR depends solely on the electricity market structure: competitive (deregulated, liberalised) or a regulated market.⁶⁹ It should be noted that both market models reveal certain downsides that the EU eventually decided to avoid.

First, from the perspective of deregulated (liberalised) electricity markets, the fact that power generators can purchase credits and then pass on the costs is contemplated as an undesired consequence.⁷⁰ As long as any additional costs can be passed on, the power generators are fairly undisturbed as to meeting their obligations, provided that someone else is handed the bill. Competitive, deregulated markets undermine EU ETS effectiveness as long as there are no strong competitive constraints preventing the pass-through of the CO₂ component. The PTR in these markets is determined mainly by the degree of market concentration (market power) and generation capacity.⁷¹

Expert conclusions lend support to these arguments based on findings of substantial increases in electricity prices since the very inception of the EU ETS. A surge in electricity prices is evident in liberalised wholesale electricity markets in Europe. Such increases have been attributed exclusively to CO₂-allowance opportunity costs, irrespective of all other factors, such as fuel prices, currency exchange rates or demand.⁷² However, a precise figure for the actual PTR is difficult to draw.⁷³ Nevertheless, power generators have

66 F Gulli, 'Modeling the Short-run Impact of "Carbon Trading" on the Electricity Sector' in F Gulli (ed), *Markets for Carbon and Power Pricing in Europe: Theoretical Issues and Empirical Analyses* (Edward Elgar 2008) 36.

67 W Blyth, *The Economics of Transition in the Power Sector* (IEA Information Paper 2010) 5.

68 *ibid.*

69 *ibid.*

70 Park (n 65) 160.

71 Gulli (n 66).

72 J Sijm, S Hers and B Wetzelaer, 'Options to Address Concerns Regarding EU-ETS Induced Increases in Power Prices and Generators' Profits' in Gulli (n 66) 101.

73 *ibid.*

factored the 'opportunity costs'⁷⁴ of carbon credits into final electricity prices, which has led to substantial windfall profits.⁷⁵

Competitive electricity markets, upon which EU ETS effectiveness is mainly dependent, may not deliver deeper carbon reductions. Since auctioning has been decided to be the primary method for allocation of carbon allowances for the electricity sector,⁷⁶ the allowances will represent a genuine cost for power generators. Energy companies will strive to internalise these costs in their entirety and pass them on. However, competitive constraints on power generators determining the merit order in which power plants are dispatched, may prove insufficient to restrict the PTR of carbon allowances.⁷⁷ As a result, the implementation of carbon abatement measures will be unlikely for as long as profit maximisation of power generators is not under threat due to weak competitive constraints on the deregulated electricity market.⁷⁸

Nevertheless, numerous options have been put forward as solutions to these problems, the most exotic of which is the regulation of electricity prices.⁷⁹ Energy regulators in regulated markets have the power to decide whether and to what extent CO₂-allowance costs shall be included in electricity prices.⁸⁰ This could prove effective in keeping electricity price levels under control. By way of regulation, electricity producers may be forced to incur these costs at the expense of their profit maximisation. They will therefore not be able to pass the costs on to large customers exposed to international competition and the problem of carbon leakage from energy-intensive industries, and insufficient abatement in the power sector, would to some extent, be resolved. However, regulating power prices is also not an uncompromised solution. The idea of regulating electricity prices comes into conflict with the current EU policy in this area—the deregulation and liberalisation of the electricity sector, as the EU envisages 'efficiency gains' through the establishment of competitive electricity prices.⁸¹ The Commission has emphasised the 'negative

74 The opportunity to sell allowances on the secondary carbon market instead of surrendering it for compliance purposes.

75 Directive 2009/29/EC (n 8) recital 15 and 19.

76 *ibid* art 10a.

77 In deregulated electricity markets, the merit order represents the sequence in which power generators are ranked in auctions on the basis of their individual cost of production. Power plants are then dispatched in accordance with this merit order. In this context, the competitive forces influencing power generators' bidding strategies in a given auction may prove too weak to provide proper incentives for carbon savings (thus making a power generator more efficient and competitive) and therefore allow higher PTR of the value of carbon allowances. It should be recalled that electricity markets are often oligopolistic. Real workable competition is rarely observed in practice. See also: Sijm and others (n 72). Their study analyses substantial price increases on wholesale electricity markets in Germany and the Netherlands.

78 For an empirical analysis on this issue, see Sijm and others (n 72).

79 *ibid*.

80 J Renaud, 'From Electricity Prices to Electricity Costs: Impact of Emissions Trading on Industry's Electricity Purchasing Strategies' in Gulli (n 66) 80.

81 Directive (EC) 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ L211/55, recitals 1, 8 and 51.

effects of regulated energy prices', such as entry barriers for new entrants, lack of incentives to change the supplier and so on.⁸² Meanwhile, what climate change regulation fundamentally mandates is the inclusion of CO₂ costs into the final prices. The 'internalisation of environmental externalities' is aimed at influencing 'behaviour by price signals'.⁸³ It should even be promoted as 'a rational, intended effect'.⁸⁴ Unfortunately, this is where the conflict is rooted. Currently, we can internalise the environmental costs, but as a result carbon leakage will occur, which 'undermines the environmental integrity and benefit of actions by the Union'.⁸⁵

Surprisingly, the EU has undertaken a third approach. Instead of focusing on solutions pertinent to competitive (deregulated) or regulated markets, the EU has decided to leave its Member States to deal with this aspect of carbon leakage by granting compensation to private operators from sectors deemed to be exposed to the risk of carbon leakage.⁸⁶ This approach is entirely coherent with other EU policy objectives. In this respect, transferring the responsibility for solving this problem onto the Member States has given rise to a key question: where will the compensatory funds come from? Do Member States want to impose an extra expense on the public purse and can they actually afford it, especially in the current climate when, at the time of writing, almost every Member State has a budget deficit and the euro-zone Member States, and the International Monetary Fund, agreed on rescue packages tied with severe austerity measures for three of its euro-zone members to prevent further crises?⁸⁷ The Commission does not seem to have given any consideration to this point.

Given the current fiscal constraints on Member States, there is a trend of phasing out rather than phasing in state subsidies.⁸⁸ Therefore, it would be reasonable to dismiss compensation as an appropriate remedy for carbon leakage. Facts should be separated from fiction. Member States' ability to provide financial support cannot be relied on in the current climate. Financial support as a type of precaution against carbon leakage is therefore unlikely to translate into action. Assuming state treasuries could afford this expense, it would pose the risk of unduly benefiting the energy-intensive sectors eligible to receive

82 European Commission, 'Report on Progress in Creating the Internal Gas and Electricity Market' COM (2009) 115 final 12.

83 M Lee, *EU Environmental Law: Challenges, Change and Decision-making* (Hart Publishing 2005) ch 7.

84 Sijm and others (n 72).

85 Commission Decision 2010/2/EU (n 35) recital 2.

86 Directive 2009/29/EC (n 8) art 10a (6).

87 Q Peel, B Hall and J Chaffin 'Leaders Agree Greece Deal' *Financial Times* (London, 26 March 2010). See also N Tait and others 'Ministers Sign Off on €85bn Ireland Deal' *Financial Times* (London, 29 November 2010); P Wise 'Portugal Reaches a Deal on €78bn Bail-out' *Financial Times* (London, 3 May 2011).

88 J Reed and G Parker 'Cable Puts Brake on Aid for Car Industry' *Financial Times* (London, 29 June 2010).

support since the exact PTR of the value of carbon allowances cannot be determined with precision. This further highlights the inappropriateness of financial support as a solution to the problem.⁸⁹ By ruling out available options one by one, the establishment of an effective 'carbon equalisation system' in the form of adjustment measures at the border seems to stand as the only plausible undertaking.⁹⁰

5. Adjustment at European Borders

Despite standing at the forefront in the global fight against climate change, the EU is understandably averse to the idea of being a pioneer in adopting BAMs. BAMs are politically the most uncomfortable resort to solving the problem of carbon leakage, which is why no initiatives have taken place yet. The EC Commission is conscious of the fact that such measures will create 'winners' and 'losers' among domestic and foreign industries, ultimately straining EU diplomatic and trade relations with other economic powers. Irrespective of how considerably and favourably designed, BAMs compatibility with the WTO legal order will in all probability be tested with a claim.⁹¹ The risk of retaliatory measures is also not to be overlooked.⁹²

The provisions of the Directive indicate that BAMs stand as measures of 'last resort'. 'An effective carbon equalisation system' is vaguely referred to in the 25th recital and article 10b of the Directive. The only allusion to the European plans for implementing BAMs states that importers, as well as domestic producers, would be required to surrender allowances.⁹³ This is currently the latest idea circulating in academic and policy debate in the EU and the USA.⁹⁴ However, the evasive wording of the Directive merely leaves the matter for further consideration. Taking into account this level of uncertainty, it would be difficult to provide an in-depth analysis due to the very speculative nature of this subject at the moment. However, few studies on the compliance of BAMs' design with the WTO legal order have been published.⁹⁵ In order to proceed

89 Sijm and others (n 72).

90 Directive 2009/29/EC (n 8) art 10b.

91 F Sindico, 'The EU and Carbon Leakage: How to Reconcile Border Adjustments with the WTO?' (2008) 17 *European Energy and Environmental Law Review* 331.

92 D Pocklington and R Leese, 'Certainties and Uncertainties: Proposed Modifications to the Emissions Trading Directive' (2008) 20 *Environmental Law and Management* 138.

93 Directive 2009/29/EC (n 8) art 10b.

94 K Holzer, 'Proposals on Carbon-related Border Adjustments: Prospects for WTO Compliance' (2010) 1 *Carbon & Climate Law Review* 56.

95 J Pauwelyn, 'U.S. Federal Climate Policy and Competitiveness Concerns: The Limits and Options of International Trade Law', Duke University 2007 <<http://nicholasinstitute.duke.edu/climate/policydesign/u.s.-federal-climate-policy-and-competitiveness-concerns-the-limits-and-options-of-international-trade-law>> accessed 1 November 2011; see also J Cendra, 'Can Emissions Trading be Coupled with Border Tax Adjustments?' (2006) 15 *Review of European Community and International Environmental Law* 131.

further with the present analysis of the WTO compatibility of BAMs, we should draw from the US experience with the Lieberman-Warner Bill, aimed at restoring the potentially impaired international competitiveness of the US producers.

5.1 US Climate Bills

At the outset, the USA has selected a somewhat more appropriate method for resolving the consequences of the 'unequal playing field'—instead of minimising the compliance costs arising out of new regulations for its industries, it has chosen another way—to impose an equivalent cost to foreign producers seeking access to its domestic market.⁹⁶ The US legislators have found conventional measures, such as free allocation, banking of allowances, carbon price floors and ceilings, insufficient to protect the economic and environmental integrity of its policies.⁹⁷

The draft Climate Security Act 2007, better known as the Lieberman-Warner Bill, was the first time the USA had considered how to secure an equal playing field, whilst proposing a cap on its emissions. Unfortunately, the Bill never passed into binding law. There were other legislative initiatives related to the same subject matter, which also collapsed for different reasons.⁹⁸ Nevertheless, the Lieberman-Warner Bill has remained a cornerstone in the US legislative efforts to tackle carbon leakage prior to implementing mandatory targets and will serve as a 'template' for future bills.⁹⁹

The most prominent features of the carbon equalisation system under the Lieberman-Warner Bill, which merit particular attention, are the definition of 'covered goods', entry of countries on the 'covered list' and quantification of the necessary allowances for each import.¹⁰⁰ The interaction between these three elements of the Bill is the fundamental on which the equalisation system is instituted. In short, the mechanics of the system can be summarised as follows: countries on the 'covered list' are considered not to have undertaken comparable efforts to combat climate change and therefore imports meeting the criteria for 'covered goods' would be subject to carbon duty, which necessitates the calculation of embedded carbon in each product of manufacture.

96 T Houser and others, *Leveling the Carbon Playing Field* (Peterson Institute for International Economics and World Resource Institute 2008) 29.

97 *ibid* ch 2.

98 P Veel, 'Carbon Tariffs and the WTO: An Evaluation of Feasible Policies' (2009) 12 *Journal of International Economic Law* 755.

99 *ibid*.

100 *ibid* 756; see also the Lieberman-Warner Climate Security Act of 2007, S 2191, 110th Congress (2007), and the amendment - Climate Security Act of 2008, s 3036, 110th Congress (2008), available at: <<http://thomas.loc.gov/>> accessed 1 November 2011.

Whether a foreign country should be included in the 'covered list' is determined through the assessment of the actions it has undertaken to limit its own emissions and in particular whether those are comparable to the ones that the USA has already made. If actions are not deemed comparable by 'an equal or greater percentage than has the US', imports from such a destination would be subject to 'carbon clearance'. The least-developed countries are excluded from the list. A *de minimis* exemption also applies, assuming that the total emissions countrywide are below certain levels.¹⁰¹

Next, the Bill defines 'covered goods' as a 'primary product or manufacturing item for consumption', the production of which generates emissions and has a US equivalent affected by domestic climate change regulation. The Act notably sets out the definition on a very broad basis encompassing virtually every item of import (including a *de minimis* exemption for small installations). Here, it should be provisionally noted that this approach places the emphasis on protecting the competitiveness of the US economy as a whole and more indirectly so on the protection of the environment.

Finally, the method of calculation for establishing the quantity of embedded carbon in import products determines the number of allowances to be surrendered. Domestic emissions-trading participants will surrender allowances based on monitoring and verification of their individual emissions. In contrast, foreign procedures will be subject to an averaged emissions accounting of all producers of that particular product category in the country of origin. The reason for giving preference to an average industry-wide carbon footprinting is the practical impossibility of tracking down all primary and secondary sources of emissions in a foreign country, let alone when a production chain comprises multiple stages stretching across borders.

5.2 Conflict with International Trade Law

Although issues of environmental competitiveness and carbon leakage are seemingly resolved through implementing a carbon equalisation system, reconciliation of the Lieberman-Warner Bill with WTO rules is far from clear. First and foremost, the differentiation between countries on the covered list and countries off the list automatically comes into conflict with the Most-Favoured-Nation principle (MFN), demanding that advantages to one WTO-member be unconditionally conferred on another.¹⁰² Notwithstanding the motives, off the list countries are obviously better positioned than the

101 Veil (n 98) 8–9.

102 M Matsushita, T Schoenbaum and P Mavroidis, *The World Trade Organization: Law, Practice, and Policy* (2nd edn, OUP 2006) ch 6.

ones on the list. In order to uphold the legitimacy of this approach, the exceptions contained in article XX of GATT are likely to be invoked.¹⁰³

Henceforth, the all-embracing model engineered by the USA, where all products of manufacture are subject to carbon clearance, may be disproportionately onerous to third countries considering the actual risk and levels of carbon leakage. The National Treatment principle (NT), mandating equal treatment and non-discrimination between domestic and imported products, prescribes that internal taxes shall not be applied 'in excess of those applied to like domestic products'.¹⁰⁴ This mandates a proportionality requirement with respect to the covered products exposed to the risk of carbon leakage. As the WTO stance on this issue suggests, there must be no real alternatives to trade restrictive measures ensuring the attainment of the environmental policy objectives.¹⁰⁵

Finally, calculating embedded carbon in foreign products is probably the most controversial aspect of the Bill from an international trade perspective. The idea that emissions embedded in foreign products will be calculated on industry-wide average factors may violate the NT principle. This method for calculation strives to reconcile two opposing approaches of emissions accounting. On the one hand, the method accounts for the regulation of 'primary emissions sources' (ie basic material industries and electricity), the derivative products of which are reflective of the regulatory compliance costs, and on the other hand it accounts for the equivalent costs levied on imported 'downstream products,' (ie intermediate or final consumer products). The latter approach is applied because of uncapped emissions from 'upstream processes' in unregulated regions.¹⁰⁶ Such reconciliation will inevitably lead to an unequal treatment due to the imprecision of import footprint calculations, which a WTO panel is unlikely to find admissible. Therefore, in an attempt to put everyone on an equal footing, the Bill reduces the weight of inequality to a certain extent. Nevertheless, the weight is likely to be shifted to the detriment of imported goods. The adoption of such an approach towards emissions accounting will also be examined below in light of the exceptions under article XX of GATT.

103 General Agreement on Tariffs and Trade (adopted on 30 October 1947, entered into force on 1 January 1948) 55 UNTS 187.

104 Holzer (n 94) 62.

105 See UNEP/WTO Report, 'Trade and Climate Change' World Trade Organization 2009 <<http://www.wto.org/english/res/e/booksp/e/trade.climate.change.e.pdf>> accessed 1 November 2011. This is within the context of the 'necessity' test examined in Section 5.5 below.

106 Houser (n 96) 34.

5.3 Equalisation Systems: Extraterritoriality and Universality

Notably, a number of aspects of a carbon equalisation system (ie the US Bill model for instance) may violate WTO basic principles—MFN and NT.¹⁰⁷ However, there are noteworthy GATT/WTO Panel findings providing for an exception through the application of article XX (b) and (g) of GATT. Indeed, case law does leave some room for uncertainty as to the outcome of potential proceedings. Whereas greenhouse gases represent a ‘by-product’¹⁰⁸ of manufacturing, which are not constituents of the final products subject to potential import requirements, the difficulty of the WTO-compliance exercise gets to the gist of the well-known ‘product v process’ debate.¹⁰⁹ Considering that the WTO regime in this respect is largely an unresolved matter, the present paper is not the place for a detailed analysis of WTO case law. However, certain considerations briefly outlined below remain clear and unambiguous.

Initially, trade measures affecting production processes related to the conservation of natural resources in another jurisdiction were not permissible (Tuna-Dolphin I).¹¹⁰ A few years later, a GATT panel rejected this limitation on the scope of article XX (g) (Tuna-Dolphin II). In 1994, the Panel stated that ‘exhaustible natural resources’¹¹¹ could be located outside the jurisdiction of the country for the purposes of enacting conservation measures. The decision of the previous panel reviewing restrictions on imports of tuna was reversed and measures affecting extraterritorial production processes became generally permissible. The critical point was reached in the Shrimp–Turtle case, which revolutionised the perception of article XX of GATT and has become the centre-piece of WTO jurisprudence on this subject matter. In the Shrimp–Turtle case, the Appellate Body established the principle that a country could impose conservation measures taking effect in another country when there is a ‘sufficient nexus’—in other words when a country shares natural resources. In addition, this has to be in pursuit of policy executed ‘by the vast majority of the nations in the world.’¹¹²

In terms of policies on protection of natural resources, experts experience no difficulties in associating the impact of anthropogenic carbon deposits in the atmosphere, which is recognised as a shared natural resource, with

107 Article XX of GATT is likely to be invoked to justify violations of article I and III of GATT (MFN and NT). Some commentators are of the view that article XI of GATT (quantitative restrictions) is also relevant, whereas others exclude it from the scope of their analyses. In fact, complete prohibitions on imports such as under article XI have not been considered by the literature (see Pauwelyn (n 95) 12).

108 Cendra (n 95) 137.

109 P Sands, *Principles of International Environmental Law* (2nd edn, CUP 2003) 952; See also J Jackson, ‘Comments on Shrimp/turtle and the Product/process Distinction’ (2000) 11 *European Journal of International Law* 303.

110 *US – Restrictions on imports of tuna* (1991) GATT (DS21/R-39S/155).

111 *ibid* (1994) GATT (DS29/R), para 5.15.

112 WTO, *US – Import prohibition of certain shrimp and shrimp products* – Appellate Body Report (6 November 1998) WT/DS58/AB/R, paras 132–5.

policies to avoid or mitigate adverse effects thereof.¹¹³ One of the most authoritative statements on the issue of climatic effects—the Stern Report—foresees that the devastating consequences from the continued release of greenhouse gases will result in the rise of global temperature. This in turn is expected to damage the environment irreversibly through increased water depletion and scarcity, higher intensity of ‘droughts and floods,’ disruptive redistribution of heat waves, affecting sea levels and every possible form of life on Earth.¹¹⁴ These potentially devastating consequences drew the attention of the international community some 20 years ago and culminated in the conclusion of the UNFCCC in 1992, which is open and ‘intended to attract universal participation.’¹¹⁵ Whereas the continued release of greenhouse gas emissions indisputably threatens to damage the atmospheric layer and the rest of the environment (a shared resource) as well as causing irreversible climate change, domestic policies implementing the UNFCCC and Kyoto objectives have been endorsed by the international community at large.¹¹⁶ International climate change objectives gain their legitimacy from 195 countries—signatories to the UNFCCC, which should satisfy the condition for a ‘sufficient nexus.’¹¹⁷

Despite subsequent developments in international negotiations highlighting a rift between participants, the Convention and the Kyoto Protocol remain landmark documents in the effort to tackle climate change. Such efforts cannot be disregarded by the WTO panels as the very objective of the UNFCCC is to curb deposits of greenhouse gases to the extent that will prevent irreversible interference with the environment.¹¹⁸ Evidently, the struggle to engineer the post-Kyoto framework has been carried on. The Copenhagen Accords¹¹⁹ and the Cancun Agreements,¹²⁰ reaffirmed previous commitments seeking progress to avoid the gap likely to appear between the Kyoto Protocol and

113 B Dhar and K Das, ‘The European Union’s Proposed Carbon Equalization System: Can It Be WTO Compatible?’ Research and Information System for Developing Countries, RIS-DP# 156, September 2009, 34 <<http://papers.ssrn.com/sol3/papers.cfm?abstractid=1513231>> accessed 4 November 2011.

114 The Stern Review, pt I (n 1).

115 P Birnie, A Boyle and C Redgwell, *International Law and the Environment* (3rd edn, OUP 2009) 359. NB the relevance of ‘universal participation’ in the context of the sufficient nexus test referred to in the text below.

116 United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) UNTS, vol 1771, art 2.

117 It is noteworthy to mention that the parties to the UNFCCC outnumber the members of the United Nations as of 2011. See also: <<http://unfccc.int/essential/background/convention/status.of.ratification/items/2631.php>> accessed 4 November 2011.

118 UNFCCC (n 116) art 2.

119 Available at <<http://unfccc.int/meetings/cop.15/copenhagen.accord/items/5262.php>> accessed 4 November 2011.

120 Available at <<http://unfccc.int/documentation/decisions/items/3597.php?such=j&volltext=1cancun%20agreements1#beg>> accessed 4 November 2011.

subsequent commitment periods.¹²¹ Measures pursuant to policies, endorsed by 'the vast majority of nations,' should therefore face no difficulties in meeting the test of 'sufficient nexus'.

Furthermore, analysts underline that compliance review of BAMs should not be constrained to WTO rules exclusively. Border measures should also be examined in light of the very foundations of the international climate change regime.¹²² As a matter of fact, BAMs seem to fit the UNFCCC the best, compared to other measures countervailing the effect of climate regulation. In order to secure fairness and equity objectives, one may go as far as to argue that BAMs are mandated by the international climate change regime. Certainly, this would require a significant stretch of argument and this article is therefore confined to more realistic assessments.

Under the umbrella of the UNFCCC, potential solutions for future accord will undoubtedly be considered on the basis of the principles of common but differentiated responsibility (CBDR) already underpinning the entire framework. As stated in Section 2 above,¹²³ it is exactly this principle that is the precursor to a loss of international competitiveness and carbon leakage, respectively. The Cancun Agreements are fully reflective of CBDR as the pathway for developed and developing countries: actions on mitigation need to be shared by placing emphasis on the leadership of developed countries.¹²⁴ In this context, the progress already achieved could actually be reinforced by the adoption of BAMs. Although this may sound too convenient to some or unconventional to others, the principle of CBDR may nonetheless be given additional force and effect with BAMs. The Cancun Agreements speak openly about enhancing cost-effectiveness of mitigation actions via market-based mechanisms, which could be achieved *inter alia* by the establishment of 'robust market functioning and regulation.'¹²⁵ Insofar as free allocation of allowances and financial compensation to energy-intensive industries are apparently not the type of measures to secure the proper implementation of CBDR, BAMs should be given thorough consideration in light of the CBDR principle and the WTO agreements as an instrument which most effectively enforces environmental policies and counteracts their undesired effects (ie carbon leakage).

121 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol at its Fifteenth Session (Decision 1/ CMP.6), FCCC/KP/CMP/2010/12/Add.1, <<http://unfccc.int/resource/docs/2010/cmp6/eng/12a01.pdf#page=3>> accessed 4 November 2011.

122 *Sindico* (n 91) 336.

123 UNFCCC and the Kyoto Protocol (n 19).

124 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (Decision 1/ CP.16) FCCC/CP/2010/7/ Add.1.

125 *ibid* 14.

5.4 Fairness and Responsibility in Emissions Accounting

Arguably, the principle of accounting for a country's carbon footprint should be revised. Under the current Kyoto approach, countries are only responsible for emissions produced on their territories. Hence, environmental policy and regulation have been designed on a production-based principle.¹²⁶ Such an approach provides developed countries with the opportunity to 'export' their carbon emissions to the developing world, primarily in BRIC countries, and to rely on imports to meet domestic consumer demand, and contribute to the attainment of environmental targets (carbon leakage). Exploiting this opportunity on a very large scale has called for a shift from a 'production-based' to a 'consumption-based' approach or rather a coupling of the two. An example in support of this argument is China—a BRICs economy. Statistics indicate that 23% of China's emissions were embodied in its exports in 2004.¹²⁷ The large figure hints that it may not be fair for a producer country to be held responsible for emissions embodied in consumer goods destined to leave its boundaries. On the other hand, it has already been advocated that 'a country's carbon footprint is international' and in order to be adequately accounted for, a consumer country should also be held responsible for imports. The environmental aspect of the problem is further amplified by the relatively higher carbon intensity of the developing countries' economies, which are major producers of goods for developed consumer countries.¹²⁸

Conversely, a producer country, which reaps the benefits from a given economic activity, should assume responsibility for all its consequences including carbon emissions. A 'consumption-based' approach to carbon accounting would however bring up the issue of extraterritorial enforcement of domestic climate change laws. Developing countries would certainly not find it acceptable and agreeable to permit undue interference in their home affairs. Hence, a pure consumption-based approach becomes an inherently unrealistic one.¹²⁹

The selection of the accounting approach as a primary method for emissions accounting remains a question of environmental justice and allocation of responsibility.¹³⁰ Unfortunately as the 'first-best' solution to the climate change

126 Pan and others (n 32) 355.

127 T Wang and J Watson, 'Who Owns China's Carbon Emissions?' Tyndall Briefing Note No 23, Tyndall Centre 2007 <<http://www.tyndall.ac.uk/content/who-owns-chinas-carbon-emissions>> accessed 4 November 2011; see also S Davis and K Caldeira, 'Consumption-based Accounting of CO₂ Emissions' 107 Proceedings of the National Academy of Sciences of the United States of America 12 (2010) 5687–92.

128 T Wang and J Watson, 'China's Carbon Emissions and International Trade: Implications for Post-2012 Policy' (2008) 8 Climate Policy 580.

129 *ibid* 583.

130 M Bruckner, C Polzin and S Giljum, 'Counting CO₂ Emissions in a Globalised World: Producer Versus Consumer-oriented Methods for CO₂ Accounting' DIE Research Project 'Development Policy: Questions for the Future' Bonn 2010 <<http://oxford.academia.edu/ChristinePolzin/Papers/260021/Counting.CO2.emissions.in.a.globalized.world.producer.versus.consumer-oriented.methods.for.CO2.accounting>> accessed 4 November 2011.

problem does not seem a viable option in the near future (ie the economically advanced economies to make efforts comparable to the ones of the developed countries), alternative solutions should be sought. Because the consumption of carbon-intensive imports is a significant reason for carbon leakage, the most outstanding merit of the consumption-based model—putting domestic and foreign producers on a comparable footing—is more enticing than ever. It has been estimated that OECD countries import approximately 30% or more of CO₂ emissions from abroad.¹³¹ The difference between consumption and production may be significantly narrowed down by BAMs, which is somewhat a middle ground between the two types of approach to carbon accounting. Whilst protecting domestic industries, BAMs will partially shift the responsibility for carbon emissions. Henceforth, BAMs may become a practical ‘second-best’ solution to level the playing field between domestic and foreign producers in order to eliminate the risk of carbon leakage.

BAMs should not be seen as a literal translation of the consumption accounting principle. The former are primarily concerned with economic and environmental impacts produced by the unequal carbon playing field. BAMs should only supplement the production-based principle, whereby consumption by developed consumer countries enacting the measures will also be accounted for. Emissions in developing producer countries arising out of domestic consumption in developed consumer countries will be added to the latter’s carbon footprint. Finding a middle ground where production and consumption-based carbon accounting principles are coupled together should influence consumer behaviour in developed consumer countries, which are carbon capped, to the benefit of the environment. This approach will account for the environmental externalities caused by imports. What is more crucial is that it will also prevent ‘consumer price arbitrage’ in developed consumer countries (ie the purchase of cheaper imports originating from developing producer countries), which is a key factor in magnifying the problem of carbon leakage.¹³²

As previously emphasised, this is not to advocate a shift from production- to consumption-based carbon accounting but instead merging the two accounting principles together.¹³³ Such amalgamation of accounting methodologies will fully conform to the concept of CBDR, as developed countries will shoulder the larger share of the burden of reducing the impact of carbon emissions. Any solution to the carbon leakage problem will gain strong legitimacy if it simultaneously greases the wheels of international trade and climate change laws.¹³⁴ Academics typically agree that actions to this end should comply

131 *ibid* 11.

132 On consumer price arbitrage, see n 16.

133 *ibid*; (n 130) 21.

134 Holzer (n 94).

with the climate change regime as well as the WTO.¹³⁵ Joining the two methods will give a strong card to play before a WTO panel reviewing the legitimacy of BAMs as they undoubtedly fall into the basket of tools accommodating coexistent policy goals. The provisional conclusion is that the equalisation system embodied in BAMs should be *a priori* eligible for exceptions under article XX of GATT as climate change represents 'a truly transboundary problem' falling within the ambit of the policy pursued by most countries.¹³⁶ In light of the above, BAMs should be contemplated as measures in pursuit of a policy embraced by the 'vast majority of the nations in the world.'

5.5 Turning the Spotlight on Art XX of GATT

Returning to strictly international-trade-law intricacies, there are other conditions that should be satisfied prior to enforcing restrictive trade measures. Article XX reveals two sub-sections relevant to the justification of BAMs: article XX (b) and article XX (g) of GATT. The chapeau of article XX imposes additional requirements concerning non-discrimination in international trade.

In this context, the primary ground for justification is article XX (g) of GATT. Eligible trade restrictive measures must be related to 'the conservation of exhaustible natural resources' and 'made effective in conjunction with restrictions on domestic production or consumption'. In *Tuna-Dolphin II*, the WTO Panel articulated this provision in a 'three-stage' test: firstly, the policy has to be 'within the range of policies to conserve exhaustible natural resource'; secondly, the measure in question is to be 'related to' such conservation and 'made effective in conjunction with restrictions on domestic production'; and finally, such measures should be non-discriminatory.¹³⁷

As proposed in the previous section, BAMs are able to enhance the effect of climate change regulation, designed to protect the atmosphere as an exhaustible natural resource. Without doubt, the enactment of BAMs may be contemplated as a measure aimed at the conservation of exhaustible natural resources, and such an enactment is therefore 'related to'¹³⁸ the protection of the atmosphere.¹³⁹ In the *US-Gasoline Case*, the WTO Panel found that 'clean air' was a 'natural resource that could be depleted' and it established that the 'related to' phrase should be interpreted in a broader sense. In practical terms, academics interpret this requirement as commanding the measure to have a

135 B Condon, 'Climate Change and Unresolved Issues in WTO Law' (2009) JIEL 901.

136 Dhar and Das (n 113) 34–40.

137 *US – Restrictions on imports of tuna* (n 110) para 5.12; See also R Ismer and K Neuhoﬀ, 'Border Tax Adjustment: A Feasible Way to Support Stringent Emission Trading' (2007) 24 *European Journal of Law and Economics* 151.

138 *US – Restrictions on imports of tuna* (n 110) para 5.21.

139 A WTO panel found that 'clean air' was a 'natural resource that could be depleted' (*US Standards for Reformulated and Conventional Gasoline*, (1996) Report of the Panel, WT/DS2/AB/R).

'substantial relationship with the objective of combating climate change'.¹⁴⁰ In this regard, it has been strongly advocated that BAMs effectively 'internalise the social costs of carbon' and 'prevent carbon leakage'.¹⁴¹ On this basis, support has been given to the opinion that they should be seen as reasonably 'related to' the conservation of the atmosphere.¹⁴² Finally, the condition to be 'made effective in conjunction with' domestic restrictions is also looked upon by experts as an easy test to pass. Taking into account the fact that BAMs are aimed at countervailing the effect of domestic environmental regulation enacted by consumer countries, the 'even-handedness requirement' is met by default (ie BAMs are brought into effect in conjunction with domestic emissions regulations).¹⁴³

In parallel to the above, article XX (b) of GATT is equally relevant as a ground for justification, and yet somehow less attention has been paid to it in literature.¹⁴⁴ Article XX (b) speaks of measures 'necessary to protect human, animal or plant life or health'. The provision clearly brings forward the necessity requirement (ie 'necessity test'). The subjects of analysis in this respect are other well-known WTO disputes: US-Gasoline Case,¹⁴⁵ Thailand-Cigarettes Case,¹⁴⁶ Korea-Various Measures on Beef Case,¹⁴⁷ and EC Asbestos Case.¹⁴⁸

In this context, the argument in support of the underlying policy is straightforward and prominent—climate change regulation has been instituted with the purpose of preventing the irreversible consequences predicted in various scientific studies.¹⁴⁹ The major hurdle here is to pass the core 'necessity test'—in other words, whether trade restrictive measures are necessary to attain the objective of protecting 'human, animal or plant life or health'. WTO case law puts this test into a more detailed perspective. It commands that measures be 'least – trade restrictive' (Thailand-Cigarettes Case), 'indispensable' or 'the only one available' (Korea-Various Measures on Beef Case). Alternatively, should a measure not qualify as 'indispensable', it still stands a chance of passing the test on the basis of 'weighing and balancing a series of

140 Dhar and Das (n 113) 44–45.

141 Pauwelyn (n 95) 3.

142 *ibid.*

143 Dhar and Das (n 113) 45.

144 In analysing the design of US climate policy, Pauwelyn for instance did not look into article XX (b) of GATT as a ground for justification (n 95).

145 WTO, *US Standards for Reformulated and Conventional Gasoline* (1996) Report of the Panel, WT/DS2/AB/R.

146 GATT Panel Report, *Thailand - Restrictions on Importation of and Internal Taxes on Cigarettes* (Thailand-Cigarettes Case), DS10/R, adopted 7 November 1990, BISD 37S/200.

147 Appellate Body Report, *Korea - Measures Affecting Imports of Fresh, Chilled and Frozen Beef* (Korea-Various Measures on Beef), WT/DS161/AB/R, adopted 10 January 2001, DSR 2001:I, 5.

148 Appellate Body Report, *European Communities - Measures Affecting Asbestos and Asbestos-Containing Products* (EC Asbestos Case), WT/DS135/AB/R (adopted 5 April 2001).

149 WMO and UNEP, 'Climate Change 2007: Synthesis Report' (IPCC 4th Assessment Report) (adopted at IPCC Plenary XXVII, Valencia, Spain, 12-17 November 2007) <http://www.ipcc.ch/publications_and_data/publications/ipcc_fourth_assessment_report_synthesis_report.htm> accessed 6 November 2011.

factors' where the importance of the 'common interests protected' is a decisive factor (EC Asbestos Case).¹⁵⁰ Most academics take the position that BAMs will face little difficulty in passing the 'necessity test' as WTO rules are not in total disregard of environmental necessities.¹⁵¹

On the other hand, policymakers should be seriously concerned with the practical implementation of BAMs, which affects their validity. Experts have warned about the vast potential for abuse and disguised protectionism, which turns the page to the chapeau provision of article XX of GATT.¹⁵² The chapeau is exclusively concerned with 'arbitrary or unjustifiable discrimination' and 'a disguised restriction on international trade'. The chapeau will probably be the greatest challenge as far as the details of future equalisation systems are concerned.

As noted earlier, any equalisation system presents an enormous challenge of how to calculate embedded carbon in imported products.¹⁵³ The establishment of a 'two-track system' enabling individual producers to opt out from averaged rates and submit an individual 'declaration' for their emissions could remedy a major weakness of the system. Declarations may be verified by import country's authorities or appointed agents at the producer's manufacturing premises. Should the information declared be missing or insufficient, the alternative track of average assessments should apply.¹⁵⁴ The provision of such an alternative has already been ruled upon in the US-Gasoline Case, where the WTO Appellate Body, concerned with data verification regarding the quality of imported gasoline, upheld that only in cases of 'absence of data' from foreign sources, could US authorities seek other means for assessment.¹⁵⁵ Given the challenges of guaranteeing precision in carbon calculations, flexibility is something that should be provided for in order to offset any shortcomings in the estimates. Also, such flexibility should become a guiding principle in forging the rest of the details of the equalisation system.

In terms of disguised restrictions on international trade, it should be noted that there is a key distinction between the USA and EU approaches. Whereas the EU exclusively stresses the carbon leakage concern, the USA seems to place emphasis on safeguarding its economy and workforce.¹⁵⁶ Commentators unanimously suggest that the case for the protection of the economy is much

150 Dhar and Das (n 113) 40–43.

151 P Holmes, T Reilly and J Rollo, 'Border Carbon Adjustments and the Potential for Protectionism' (2010) 11 *Climate Policy* 884.

152 Pauwelyn (n 95) 5.

153 See Section 5.2 'Conflict with International Trade Law' above (n 108).

154 Houser (n 96) 35.

155 WTO (n 145) para 6.28.

156 Compare for instance recitals 5 and 6 of Commission Decision 2/2010/EU (n 35) on the assessment and compilation of a list of sectors exposed to carbon leakage and the Byrd-Hagel Resolution of the US Senate warning of the adverse impact that a carbon cap may produce on the US economy. See Byrd-Hagel Resolution, US Senate, 105th Congress (1997–1998), 1st Session, S.RES. 98.

weaker compared to the protection of the environment. The connection between the economy and environmental objectives is too tenuous to pass any of the tests under article XX of GATT.¹⁵⁷ On the other hand, the European Commission Decision, determining industry sectors exposed to the risk of carbon leakage, has attested that the EU will seek the least-disruptive solution.¹⁵⁸ Only sectors at risk of carbon leakage have been included on the list.¹⁵⁹ The EU employed a selective high-threshold approach to assess the risk of carbon leakage. For a sector to be deemed to be exposed to carbon leakage risks it will have to be subject to a cost increase of at least 5% and import (trade) deficit towards third countries of above 10%, arising out of the impact of the EU ETS. The cumulative match of these figures is manifest evidence of carbon leakage. Alternatively, either the cost increase or trade deficit must be above 30%.¹⁶⁰

This rather conservative and precautionary stance, compared to the USA approach, should facilitate the implementation and feasibility of WTO compliance. The well-filtered European border adjustment model, where BAMs are imposed only on products from sectors at risk of carbon leakage is much more likely to obtain a WTO sanction of approval rather than the US' 'all-embracing' model.¹⁶¹ Under the US model, the definition of 'covered goods' includes virtually every item of manufacturing output, paving the way for restriction of international trade since not all domestic products may be exposed to the risk of carbon leakage as highlighted by the EU approach.¹⁶² Certainly, it would be much more beneficial to a country's economy to have every single item subject to carbon clearance, but this would almost certainly not be tolerated under the multilateral trading system. The complex admissibility test under article XX of GATT demonstrates that WTO rules disallow economic measures to be defended on environmental grounds.

Finally, WTO case law mandates each country to 'engage in serious, across-the-board negotiations' before enacting any measures.¹⁶³ Such conditions may prompt negotiations on sectoral agreements as a precursor to BAM implementation. In principle, sectoral agreements are another precaution against carbon leakage.¹⁶⁴ However, they may easily be viewed as a premise

157 H Asselt and T Brewer, 'Addressing Competitiveness and Leakage Concerns in Climate Policy: An Analysis of Border Adjustment Measures in the US and the EU' (2010) 38 *Energy Policy* 49.

158 Commission Decision 2010/2/EU (n 35).

159 UNEP/WTO Report (n 105) 108.

160 Directive 2009/29/EC (n 8) art 10(b) (15).

161 Veel (n 98) 3.

162 Commission Decision 2010/2/EU (n 35).

163 WTO (n 112) para 166.

164 Sectoral Agreements are referred to as agreements leading to 'global greenhouse gas emission reductions' as per art 10b of Directive 29/2009/EC (n 8). Such agreements shall be agreed at industry level. None have been executed yet.

to enacting a BAM under the EU ETS Directive.¹⁶⁵ The requirement to take into account any binding sectoral agreement complies with the condition of engaging in negotiations across the board. This concept should be expanded so as to force negotiations of sectoral agreements prior to BAM implementation.

Even such a general assessment of the WTO provisions hints that it is generally admissible to impose BAMs in order to level the carbon playing field between domestic and foreign producers. It is noteworthy to specify that the WTO's own position concerning border measures has been expressed in a joint report with UNEP.¹⁶⁶ The report is not definitive on the point of the border adjustment concept, but it charts the way for deliberations to take place as it alludes to allowing such measures under the WTO framework.¹⁶⁷ In particular, the report acknowledges that industrial competitiveness may be impaired as a result of uneven carbon constraints and that free allocation of allowances may not prove an efficient solution to this problem. The report undeniably looks into the justification of environmental policies under article XX of GATT, where it sees practical challenges (ie difficulties in the assessment of embedded carbon) rather than conceptual incompatibility between BAMs and WTO rules.¹⁶⁸

6. Finding Workable Solutions

Whereas the above overview speaks supportively of BAMs' compatibility with the WTO, there are other relevant considerations favouring BAMs in contrast to free allocation of allowances and financial support to energy-intensive industries.¹⁶⁹ Albeit fraught with difficulties, the elaboration of BAMs remains the only workable solution to the problem of carbon leakage. BAMs are the only solution that is capable of maintaining the sufficiency of the carbon price signal. Despite the Directive's amendments, the environmental effectiveness of the EU ETS remains at stake. Without BAMs, free allocation to EU ETS industries has been viewed by some analysts as an actionable subsidy under WTO law.¹⁷⁰

In the WTO US-Softwood Lumber Case, it was concluded that 'financial contribution' may take more obscure forms other than direct government

165 Directive 29/2009/EC (n 8) art 10(b).

166 WTO/UNEP Report (n 105).

167 Z Zhang, 'The US Proposed Carbon Tariffs and China's Responses' (2010) 38 *Energy Policy* 2168.

168 WTO/UNEP Report (n 105) 99–107.

169 Asselt and Brewer (n 157) 43.

170 M Lodefalk and M Storey, 'Climate Measures and WTO Rules on Subsidies' (2005) 39 *Journal of World Trade* 43.

payments for as long as there is an 'in-kind contribution' of specific value.¹⁷¹ It has been suggested that carbon allowances do represent an in-kind contribution of significant value considering the generous cap levels under the National Allocation Plans (NAPs) of EU Member States during Phase II of the EU ETS.¹⁷² Moreover, free allocation is viewed as tantamount to 'distribution of cash', therefore making it unacceptable as an economic or environmental policy instrument.¹⁷³ Transforming free allocation into a somewhat more restrictive method—now featuring benchmarking—will not erase the subsidy effect of the past. Analyst surveys show that this effect is planned to be carried forward to a considerable extent into Phase III of the ETS.¹⁷⁴ Furthermore, the provision of 'targeted subsidies' such as financial support to energy-intensive industries may also come into conflict with the WTO order.¹⁷⁵ However, the majority of industries' responses to stakeholders' public consultation under article 10(b) of the Directive understandably reveal a strong appeal for free allocation and financial support as a primary means of tackling carbon leakage.¹⁷⁶ After all, the EU ETS when based on free allocation and financial support may turn out to be more than just inefficient. It may run contrary to its own objectives. As already noted, free allocation of allowances may help regulated industries generate 'windfall profits'.¹⁷⁷

More doubts have been cast on the free allocation method used by the European Commission itself after it unveiled plans under consideration to withdraw a certain amount of allowances set for auctioning in the third commitment period of the EU ETS.¹⁷⁸ Calls for the withdrawal of allowances purport to enhance the stringency of the cap. This turn away from the market gives an expression to the concern that free allocation has provided perverse incentives and abatement targets may not be delivered. Such an intervention would further imply that the subsidy effect should be eliminated as well.

In contrast, BAMs enable the EU ETS to become a self-contained mechanism independent from the environmental policies of other countries. Thus, the environmental effectiveness of the mechanism will not be compromised.

171 WTO Panel 29 August 2003, *United States - Final Countervailing Duty Determination with respect to Certain Softwood Lumber from Canada*, WT/DS257/R; WTO AB 19 January 2004, *United States - Final Countervailing Duty Determination with respect to Certain Softwood Lumber from Canada*, WT/DS257/AB/R; see also S Charnovitz, 'Trade and Climate: Potential Conflicts and Synergies' Working Draft (July 2003) <<http://www.pewclimate.org/docUploads/BeyondKyoto.Trade.pdf>> accessed 6 November 2011.

172 Zapfel (n 10) 28–31.

173 J Windon, 'The Allocation of Free Emissions Units and the WTO Subsidies Agreement' (2009) 41 *Georgetown Journal of International Law* 202.

174 Tvinnereim and Roine (n 60) 8.

175 Asselt and Biermann (n 34) 501.

176 Documents available at: <<http://ec.europa.eu/environment/climat/emission/carbon.en.htm>> accessed 6 November 2011.

177 See Section 3 'Free Allocation of Allowances to Sectors at Risk of Carbon Leakage' (n 39).

178 European Commission 'A Roadmap for Moving to a Competitive Low-carbon Economy in 2050' COM(2011)112 final 11.

Currently, this is the only resort that may enable the recovery of the CO₂ price to higher levels capable of delivering genuine carbon abatement. Moreover, BAMs may produce beneficial 'spill over' effects on top of carbon price recovery.¹⁷⁹ Despite bearing the marks of a marginal issue, this effect is not to be overlooked within the broader context of carbon abatement. Economic studies forecast that BAMs will produce wide reaching effects inducing a 'negative leakage' in countries without carbon commitments. In other words, emissions outside carbon-capped regions will be on the decline because of reduced demand within carbon-constrained regions.¹⁸⁰

In fact, there will certainly be zealous opposition to BAMs in some quarters. Even the EU's selective light touch attitude towards the matter of carbon leakage is likely to cause political and diplomatic tensions. In order to make the policy implementable and more appealing, flexibility of the mechanism must be assured and continuously maintained—a principle vigorously demanded by WTO case law in terms of non-discriminatory treatment and avoidance of international trade restrictions. In this regard, negotiation of sectoral agreements should be a mandatory prerequisite for BAMs. Additional flexibility, such as the technical adjustment factors under the US Bill, should be administered to ensure, as far as possible, the robustness of carbon footprint calculations. For example, technical adjustment factors should establish whether comparable actions have been undertaken by a particular country as well as to account for other divergent conditions (ie energy mix, energy efficiency, etc).¹⁸¹ Assessments of comparable efforts should be subject to review and appeal since WTO case law unconditionally demands 'basic fairness and due process' giving an opportunity, for countries whose economic interests are affected, to respond to unilateral trade measures and request their review.¹⁸² Finally, the revenue from the equalisation system, in whole or in part, may also be recycled back to the respective country of export.¹⁸³

Evidently, BAMs are the arm of policy that may be characterised as the most flexible and efficient, unlike free allocation and financial support. Adhering to this exemplary approach should render the EU model of BAMs an easy to sell idea. BAMs offset potential subsidy effects of free allocation and provide greater flexibility in terms of interacting with other participants on the international plane, thereby avoiding the risk of being accused of serving purely protectionist interests. As a result, BAMs will feasibly enable the EU to commit to deeper abatement targets.¹⁸⁴ Otherwise, free allocation and financial compensation will leave the very ambitious EU emissions targets on paper, necessitating

179 Monjon and Quirion (n 28) 14.

180 *ibid.*

181 Veel (n 98) 10.

182 Shrimp-Turtle Case (n 112) paras 180–81.

183 Monjon and Quirion (n 28).

184 Pauwelyn (n 95) 4.

industries to be exempt, wholly or partially, from regulation. This is currently the case with industries exposed to carbon leakage eligible to receive their allowance requirements at 100 % for free under article 10a (12) of the Directive.

7. Conclusion

In conclusion, even though the wisdom of free allocation and financial compensation is uncertain, there are strong indications that these will not prove effective in tackling carbon leakage whilst incentivising the achievement of the EU 20% carbon reductions by 2020. Free allocation and financial support are measures that are bound to fail. Carbon allowances have been generously provided for free,¹⁸⁵ as the European Commission has been bullied by industries with threats of relocation and job losses.¹⁸⁶ Despite the fact that these measures are favoured by stakeholders, carbon abatement, on the one hand, and free allocation, and compensation, on the other hand, have no common ground on which to meet. Free allocation of allowances enables participants to delay abatement actions, thus impairing the environmental efficiency and integrity of the EU ETS. Financial compensation is an extra expense that no EU Member State can afford at this stage. As a result, energy-intensive industries will be exposed to fully passed-through carbon costs from power generation, leading directly to value added increases in manufacturing output. Failing to implement without further policy precautions against carbon leakage, would be anything but conducive to the EU's environmental objectives given the mounting cost pressure on energy-intensive industries.

On the other hand, BAMs are unquestionably an ambitious proposal. They are however, the only measure against carbon leakage that could take the EU ETS out of its precarious situation—being dependent on comparable efforts made by other major economies in terms of emissions reductions. BAMs allow the EU ETS to be self-standing from the rest of the world. Certainly, we are not contemplating the EU operating in a vacuum. Internal and external political influences on the EU will persist and will render the difficulty of enforcing BAMs even greater. It is beyond any doubt that certain concessions will have to be made, as experience has demonstrated that carbon equalisation systems in their pure form may not be acceptable to many. However, a resolution on this platform should be sought, considering BAMs' potential for enabling the expansion of the EU ETS and effecting much deeper carbon savings.

185 Documents available at <<http://ec.europa.eu/environment/climat/emission/carbon.en.htm>> accessed 6 November 2011.

186 Corporate Europe Observatory (n 12) 5–6.