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RESEARCH ARTICLE

Implementing the Kyoto Protocol without the USA: the strategic role of energy tax adjustments at the border

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Abstract

This article explores options for countries that have ratified the 1997 Kyoto Protocol to the UN Framework Convention on Climate Change and that intend to implement ambitious climate protection strategies – the 'Kyoto coalition' – to deal with possible comparative disadvantages vis-à-vis third parties, in particular industrialized countries that do not adhere to the Kyoto Protocol. Specifically, the article focuses on the instrument of border adjustments for energy taxes. We outline the rationale for such adjustments and examine in detail whether certain border adjustments for energy taxes would be permissible under world trade law, in particular the General Agreement on Tariffs and Trade and the Agreement on Subsidies and Countervailing Measures. We conclude that despite remaining ambiguity in both the legal provisions and the pertinent case law, border tax adjustments are under certain circumstances compatible with world trade law. Yet, given persisting legal uncertainty, it seems likely that affected members of the World Trade Organization would challenge such energy tax adjustments at the border before the WTO dispute settlement mechanism.

Keywords: Border tax adjustments; Climate and trade; Kyoto Protocol; US climate policy

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1. Introduction

The entry into force of the Kyoto Protocol to the United Nations Framework Convention on Climate Change on 16 February 2005 has highlighted the political divide between the coalition of industrialized countries that support the Kyoto treaty and plan to implement stringent climate policies, and the few industrialized countries that are unwilling to do so.[1] This situation has a likely consequence: energy prices, in particular between the USA and Europe, will continue to develop in different directions.[2] Current trends in European energy and climate policies are expected

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to result in further increases in the price of energy, while US prices will remain unaffected by the current climate policies of the Bush administration.

Price increases in Europe may be brought about, in particular, by environmental taxation.[3] Up until now, different schemes of energy or carbon taxes have been introduced in Austria, Belgium, Denmark, Finland, Germany, Italy, Japan, the Netherlands, Norway, Slovenia, Sweden and the UK.[4] Energy prices in the USA are already substantially lower than in most countries with sizeable energy taxes. For instance, the price of heavy fuel oil for industry in the USA is about one-fifth lower than the average price in a sample of nine other OECD countries, all of which have some form of energy taxation (see Table 1). Regarding electricity prices for industry, prices in the USA are lower by as much as one-third. This price gap between the USA and other industrialized countries is more remarkable given that countries with energy tax regimes already grant numerous exemptions for energy-intensive industries. Without such exemptions, price effects of domestic energy taxation would be higher. Some countries, such as Germany, are also planning to significantly reduce the number of exemptions.[5]

Table 1. Retail energy prices in selected countries* (in US$/unit)

	Heavy fuel oil for industry (t)	Light fuel oil for households (1000 l)	Unleaded premium (l)	Electricity for industry (kWh)	Electricity for households (kWh)
Austria	72.24	463.50	0.905	0.07	0.13
Denmark	240.64	707.12	0.989	0.05	0.19
Finland	248.64	440.67	0.987	0.04	0.07
Germany	189.42	410.58	0.920	0.05	0.12
Italy	230.50	797.14	0.962	0.09	0.13
Netherlands	241.31	545.23	1.056	0.06	0.13
Norway	388.48	627.11	1.190	n.a.	0.06
Sweden	X	629.45	1.023	0.03	0.08
UK	202.13	365.57	1.278	0.05	0.10
Average	**226.67**	**554.04**	**1.034**	**0.06**	**0.11**
USA	182.50	388.96	0.455	0.04	0.08
Difference (%)	-19.5	-29.8	-56.0	-33.0	-27.3

* Prices are averages for the 4th quarter of 2000 or latest available.
X: data not applicable; n.a.: data not available.
Source: International Energy Agency (2001), Key World Energy Statistics from the IEA, pp. 42–43, and authors' calculations.

Such price differentials created or reinforced by environmental taxation have triggered strong political pressure against European governments and the European Commission in the past, and they are likely to continue to do so. Such political pressure, in particular from industry, may obstruct European environmental policies and become a threat for climate protection strategies and the implementation of the Kyoto Protocol. This in turn might jeopardize, or at least complicate, the implementation of the Kyoto Protocol in those countries that have ratified it.

A number of different options are available for European governments to offset real or perceived impacts of energy taxes on competition.[6] Most prominent is the partial or full exemption from the tax and the granting of reduced tax rates. Although such tax exemptions for energy-intensive or export-oriented industries can eliminate competitive disadvantages or reduce the burden below a threshold of concern, exemptions also give rise to significant problems.[7]

In this article, we therefore analyse an alternative measure that could offset competitive burdens on the global marketplace without watering down the environmental objective of reducing carbon dioxide emissions: the adjustment of energy taxes at the border. There are at present no such border adjustment schemes on energy taxes in place, nor do we expect such adjustments to be enacted soon. Instead, we are interested in the question of whether such border tax adjustments would be allowable under world trade law if, at some time in the future, European decision-makers would deem such measures as being necessary to protect (possibly more stringent) European climate policies from competition by non-European industrialized countries. This information about a hypothetical future situation is highly relevant for the present development of policies, and it might prove to be important information for climate negotiators in both Europe and the USA.[8]

It is important to note that we draw a distinction between border tax adjustments vis-à-vis non-European industrialized countries, on the one hand, and developing countries, on the other. We draw this distinction on both fairness and legal grounds. On fairness grounds, certain advantages for developing countries through the implementation of the Kyoto Protocol are probably justified given the historic overuse of the atmosphere in the course of Northern industrialization and the persistent higher per-capita emissions in the North. On legal grounds, such advantages seem justified, if not required, by the principle of common but differentiated responsibilities and capabilities as enshrined in Article 3:1 of the 1992 UN Framework Convention on Climate Change, as well as in the 1992 Rio Declaration on Environment and Development. These legal documents influence the interpretation of world trade law, since its interpretation must take into account widely ratified multilateral treaties concluded by WTO parties in related domains (see Biermann, 2001, on this question).

In addition, possible environmental leakage effects to developing countries can be addressed through existing mechanisms, such as the Global Environment Facility that has been created to reimburse the agreed incremental costs of developing countries in implementing the climate convention and a few other agreements.[9] Thus, border tax adjustments might be implemented – if justifiable under world trade law, as will be analysed in the remainder of this article – against industrialized countries that gain trade advantages through persistently lower energy prices owing to insufficient implementation of climate policies. Border tax adjustments should be avoided, however, against developing countries, while other policies to address carbon leakage, such as financial and technological assistance, could be used instead.

Our argument is organized as follows. Section 2 briefly introduces relevant rules of world trade law, followed by more detailed discussions on the legality of energy tax adjustments at the border for imported goods (Section 3) and for exported goods (Section 4). Section 5 addresses the appropriate level of border taxes, and Section 6 summarizes the argument.

2. Energy tax adjustments at the border under world trade law

The idea of tax adjustment at the border is not new.[10] Governments have applied border tax adjustments since the late 18th century, and in the 19th century, rules for the use of border tax adjustments were widely included in intergovernmental agreements to prevent the protectionist use of this instrument. Later, this question became relevant in the negotiation of the GATT and of the treaties that established the European Communities. For example, many tax schemes adjust for

excise taxes on products such as cigarettes or alcohol. It is common in most value-added tax schemes to impose taxes on these types of products regardless of where they are produced.

In the late 1960s, discussions on border tax adjustment arose within the OECD trade committee and the GATT, when some countries began to harmonize indirect taxes. Border tax adjustments then became more widely used, chiefly in the context of value-added taxes, and in 1968 the GATT established a Working Party on Border Tax Adjustments to address various questions that had arisen from this trend. The Working Party concluded its discussions in a final report in 1970 (GATT Working Party on Border Tax Adjustments, 1970). It defined border tax adjustments as:

> any fiscal measures which put into effect, in whole or in part, the destination principle (i.e. which enable exported products to be relieved of some or all of the tax charged in the exporting country in respect of similar domestic products sold to consumers on the home market and which enable imports sold to consumers to be charged with some or all of the tax charged in the importing country in respect of similar domestic products) (GATT Working Party on Border Tax Adjustments, 1970, para. 4).

The WTO Committee on Trade and Environment (WTO CTE, 1997, para. 28) later confirmed this definition, and it still represents the basic view of the WTO on the issue.

Are border adjustments related to energy taxes permitted under world trade law? A clear-cut answer to this question is not easily found, because many relevant principles and legal terms are not clearly defined in WTO law, and the case law through dispute settlement panels and the WTO Appellate Body remains sketchy. Also, different legal provisions apply to adjustments on the import side – when the domestic tax is imposed on like products when imported (see Section 3) – and to adjustments on the export side, that is, when the domestic tax is remitted on the exported product (see Section 4).

3. Energy tax adjustments for imported goods

3.1. Basic provisions

The basic principle is Article III:1 of the GATT, which states that internal taxes and other internal charges 'should not be applied to imported or domestic products so as to afford protection to domestic production', and Article III:2, which adds that imported products 'shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind in excess of those applied, directly or indirectly, to like domestic products'.

A border tax on an imported product could thus be seen as a violation of these provisions if the tax is not levied on the like domestic product. Hence, adjustments for taxes that are levied equally on both the domestic and the imported final product (indirect taxes) are defensible under world trade law. These include sales, excise, turnover or value-added taxes, as well as, in theory, taxes directly levied on imported fossil fuels if not in excess of those applied to like domestic fuels.

On the other hand, the current interpretation of world trade law is unambiguous inasmuch as direct taxes are not eligible for adjustment at the border. Direct taxes would include, following the definition in the 1994 Agreement on Subsidies and Countervailing Measures, 'taxes on wages, profits, interests, rents, royalties, and all other forms of income, and taxes on the ownership of real property' (footnote 58, Annex I to the Agreement on Subsidies and Countervailing Measures, 1994).

Countries with high taxes on income or profits thus have no means to offset this comparative disadvantage through adjustments at the border, while indirect taxes (taxes on products) can be adjusted. This distinction between direct and indirect taxation has long been questioned as artificial. One concern of the 1970 Working Party on Border Tax Adjustments was that it favours countries that heavily rely on indirect taxes and discriminate against countries that predominantly rely on direct taxes (GATT Working Party on Border Tax Adjustments, 1970, para. 8).

However, no convincing alternative to this approach has been agreed upon, and it seems that its advantages and disadvantages are quite balanced (see also Demaret and Stewardson, 1994). The distinction between direct and indirect taxation is now accepted for both imports and exports (see GATT Panel: United States Tax Legislation (Domestic International Sales Corporations-DISC, 1976)).

3.2. Differentiating between indirect and direct taxation

Given this relevance of the legal distinction between indirect and direct taxes, the exact position of the line between them becomes crucial. The eligibility of taxes for adjustment remains unclear, in particular, in the case of indirect taxes that are indirectly applied to end-products; that is, input or process-related prior-stage taxes on physical inputs such as energy, which stands at the heart of this article. The GATT is far from clear in this respect. Article III:2 of the GATT addresses taxes that are 'applied to' products, and Article VI:4 (on countervailing duties vis-à-vis border tax adjustments) mentions taxes 'borne by' products.[11] Article III:2 of the GATT refers to taxes applied 'directly or indirectly' to the product (which has a different meaning here from direct and indirect taxes but refers to different indirect taxes). As mentioned above, it is undisputed that direct taxes – in particular on labour, such as income taxes or social security charges – are not 'applied to', or 'borne by', end-products (GATT Working Party on Article XVI:4, 1960). However, the exact distinction regarding taxes on material inputs such as energy is less clear.

Article II:2(a) of the GATT reads that nothing in Article II (on schedules of concessions) shall prevent parties from imposing on the importation of any product

> a charge equivalent to an internal tax imposed consistently with the provisions of paragraph 2 of Article III in respect of the like domestic product or *in respect of an article from which the imported product has been manufactured in whole or in part* [emphasis added].

The use of the word 'article' could indicate that the charge equivalent to the indirect tax shall be construed as restricted to products physically incorporated into the final product (which would exclude energy or carbon taxes), though this interpretation is not obligatory given the ambiguous wording of the provision (the equally valid French text, however, speaks of *une marchandise qui a été incorporée dans l'article importé*, which would most probably exclude energy). The 1970 GATT Working Party on Border Tax Adjustment could find no consensus on such process-related indirect taxes, stating that so-called '*taxes occultes*' – including taxes on energy – could not be clearly categorized in the context of border tax adjustment eligibility (GATT Working Party on Border Tax Adjustments, 1970, para. 15). In summary, WTO treaty law lacks clarity regarding the legality of border adjustments for energy taxes when goods are imported. The next section now turns to the relevant jurisprudence.

3.3. Pertinent case law

There is little case law to shed light on this matter. The issue has been addressed, first, in the *US Superfund Tax* case. This case dealt with the 1986 United States Superfund Amendments and Reauthorization Act, which stipulated different income and excise taxes, including an excise tax on certain chemicals used as inputs for the processing of chemical derivative products. The revenue of this tax was to be used to clean up toxic waste disposals related to such chemicals. The tax was imposed on the domestic use of these feedstock chemicals and remitted when they were exported. The final products were not separately taxed. Products from outside the USA made from the listed chemicals were, in the sense of a border tax adjustment, taxed with a relatively modest rate of up to US$5 per ton, which corresponded to the internal tax imposed on the domestic feedstock chemicals (for a detailed discussion, see Brack et al. (2000) and Hoerner (1998)). The importer had to provide information on the use of the listed chemical in the production process of the imported product. The tax was then calculated on the amount of the tax that would have been paid if the product had been produced in the USA. If these data were not provided, the tax was calculated according to the predominant production method employed in the USA. In the case of substances where no such regulation on predominant production methods was defined, a flat rate was applied. This Superfund tax – that is, a prior-stage specific tax on listed chemicals used as inputs for the production of chemical derivatives – was challenged by the European Communities, Mexico and Canada before a GATT panel (GATT Report of the Panel: United States – Taxes on Petroleum and Certain Imported Substances, 1987).

Largely in support of the USA, the panel found that taxes on 'chemicals used as materials in the manufacture or production of the imported substances' might be taken into account when imposing border tax adjustments on imported like products (GATT Report of the Panel: United States – Taxes on Petroleum and Certain Imported Substances 1987, para. 5). The panel, however, did not indicate whether the chemicals needed to be physically incorporated in the final product in any way, or whether they could be consumed without remaining traces in the production process. In other words, are fuels to be deemed 'chemicals used as materials in the manufacture or production' of products? Not asked on this point in this case, the panel remained understandably silent.

In a case similar to the Superfund tax, the US Ozone Depleting Chemicals (ODC) tax, introduced to implement the Montreal Protocol on Substances that Deplete the Ozone Layer (Brack et al., 2000; Hoerner, 1998), was an excise tax on certain ozone-depleting chemicals. Imports of these chemicals were charged with a tax equal to the domestic tax; for exports, the tax was rebated. Again, the ODC tax was adjusted on imports of either the substances themselves or products containing or produced with these ODCs. Therefore, the border tax adjustment was also process-related. The adjustment was based on the amounts of substances used, as reported by the importer or calculated according to the predominant production method approach. The ODC border tax adjustment was quite effective in protecting the domestic ODC industry from foreign competitors while allowing the systematic phase-out of ODCs in US industry, and therefore established the importance of border tax adjustments in the context of taxes with environmental purposes (Brack et al., 2000).

In the *Tuna/Dolphin* cases, the USA had to defend a ban of tuna imports, following a domestic law that aimed at protecting dolphins and other mammals, before a GATT panel.[12] Although no taxes were involved, the panel nevertheless examined the interpretation of Article III:2 and held it

to be inconsistent to apply the national treatment principle only to taxes that are borne by products, while permitting its application to regulations not applied to the product as such. However, the panel also found that a state could not regulate imports in respect of the process by which the product was obtained or manufactured. The second *Tuna/Dolphin* report basically maintained this argument, while the *Shrimp/Turtle* decisions have loosened the ban on trade measures based on process standards.[13] In summary, although the case law is not unambiguous as to whether national energy taxes could be supported through border adjustments, it seems that taxes on chemicals – possibly also energy – used as materials in the manufacture or production of imported substances can be included in border tax adjustment schemes.

4. Energy tax adjustments for exported goods

4.1. Early provisions

Concerning border tax adjustment on exports, Article XVI:4 of the GATT prohibits subsidies for products that result 'in the sale of such product for export at a price lower than the comparable price charged for the like product to buyers in the domestic market', and Article VI:2 of the GATT allows a party to impose countervailing duties on the imported product equivalent to the subsidy granted by the exporter. This does not apply, however, to indirect taxes: Article VI:4 states that no product shall be subject to anti-dumping or countervailing duties by reason of the exemption of such product from 'duties or taxes borne by the like product when destined for consumption in the country of origin or exportation, or by reason of the refund of such duties or taxes'.

Article 26:2 of the Havana Charter (an aborted precursor to the WTO) was more specific. It allowed the 'remission of duties or taxes imposed on raw materials and semi-manufactured products subsequently used in the production of exported manufactured goods'. Following this, taxes on certain inputs were obviously considered eligible for adjustment (Demaret and Stewardson, 1994). Oscar B. Ryder, the US negotiator at the London Preparatory Committee to the Havana Charter, reported that the wording 'directly or indirectly' in the respective GATT Articles III:2 and VI:4 was meant to allow border adjustments on 'a tax, not a tax on a product as such, but on the processing of a product, which are covered by the word 'indirectly' here' (quoted in Hoerner, 1998).

The 1979 Code on Subsidies and Countervailing Measures permitted in paragraph (g) of its Annex the exemption or remission of indirect taxes in respect of the production and distribution of exported products. The remission of prior-stage cumulative taxes on goods or services used in the production of products, however, was only permitted to the extent that they are levied on goods that are physically incorporated in the exported product (paragraph h). Whether energy taxes fell under the provision for prior-stage cumulative taxes remained unclear,[14] though it is likely that 'physically incorporated' did exclude fuels and other substances that are neither present nor have altered the composition of the final product.[15]

4.2. 1994 Agreement on Subsidies and Countervailing Measures

The 1994 Agreement on Subsidies and Countervailing Measures, however, changed the impetus of these provisions. Now, paragraph (h) of Annex I – the illustrative list of export subsidies – identifies as an export subsidy

> [t]he exemption, remission or deferral of prior-stage cumulative indirect taxes [footnote omitted] on goods or services used in the production of exported products in excess of the exemption, remission or deferral of like prior-stage cumulative indirect taxes on goods or services used in the production of like products when sold for domestic consumption; provided, however, that prior-stage cumulative indirect taxes may be exempted, remitted or deferred on exported products even when not exempted, remitted or deferred on like products when sold for domestic consumption, if the prior-stage cumulative indirect taxes are levied on *inputs that are consumed in the production of the exported product* (making normal allowance for waste) [...] [emphasis added].

Paragraph (h) further requires that this proviso needs to be interpreted in accordance with the guidelines on consumption of inputs in the production process in Annex II. Annex II then defines in footnote 61 that

> inputs consumed in the production process are inputs physically incorporated, *energy, fuels and oil used in the production process* and catalysts which are consumed in the course of their use to obtain the exported good [emphasis added].

In other words: if a government exempts a prior-stage cumulative indirect tax on energy, fuels or oil used in the production process only on exported goods and not on goods sold for domestic consumption, then this will not be considered an export subsidy.

It seems likely that the USA would object to such an interpretation of footnote 61. Demaret and Stewardson (1994) quote a US trade official who had claimed in 1994, in a letter to the US Council for International Business, that

> the change in question [i.e., insertion of footnote 61] was proposed to address a specific and very narrow issue involving certain energy-intensive exports from a limited number of countries. It was never intended to fundamentally expand the right of countries to apply border adjustments for a broad range of taxes on energy, especially in the developed world. ... We have discussed the matter with other developed countries involved in the Subsidies Code negotiations. We are satisfied that they share our views on the purpose of the text as drafted and the importance of careful international examination before any broader policy conclusion should be drawn regarding border adjustments and energy taxes.[16]

Indeed, the intentions of the parties at the time of the conclusion of a treaty, as reported here by the US trade representative – as well as any understandings and agreements reached at that time – are to be taken into account when interpreting footnote 61 of Annex II of the Agreement on Subsidies and Countervailing Measures. Yet, the Vienna Convention on the Law of Treaties, which is widely seen in most quarters as codification of customary law (thus binding the USA), requires that first and foremost, '[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose' (Vienna Convention on the Law of Treaties, 1969, Article 31:1).

The wording of footnote 61 and Annex II of the Agreement on Subsidies and Countervailing Measures, which states that 'energy, fuels and oil used in the production process' are 'inputs consumed in the production process', is quite unambiguous. The Vienna Convention acknowledges, in addition, that

> [t]he context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preambles and annexes: (a) any agreement relating to the treaty which was made between all the parties

in connexion with the conclusion of the treaty; (b) any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty (Vienna Convention on the Law of Treaties, 1969, Article 31:2).

We are not aware of any such agreement made by all parties to the WTO agreement regarding the interpretation of footnote 61 – the letter by the US trade representative quoted above (including the reference to 'other developed countries' as opposed to 'all parties' required by the Vienna Convention) reveals rather that no written formal agreement exists that has been made by all parties and that would give the terms used in footnote 61 a meaning different from their ordinary meaning. Therefore, it would appear that the 'gentlemen's agreement' referred to by the US trade representative would fall under Article 32 of the Vienna Convention, stating that

[r]ecourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, *in order to confirm* the meaning resulting from the application of article 31 [quoted above], or *to determine the meaning when* the interpretation according to article 31: (a) leaves the meaning ambiguous or obscure; or (b) leads to a result which is manifestly absurd or unreasonable [emphasis added] (Vienna Convention on the Law of Treaties, 1969, Article 32).

We do not see any reasons to apply Article 32, since the circumstances referred to by the US trade representative neither confirm the 'ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose', nor is the interpretation that energy taxes are eligible for border tax adjustments on exports 'ambiguous or obscure' or in effect 'manifestly absurd or unreasonable'.

Likewise, according to Article 31:1 of the Vienna Convention, the proper interpretation of provisions of the Agreement on Subsidies and Countervailing Measures would require taking into account their context, which would include the conclusion of the Kyoto Protocol and its likely overwhelming acceptance by WTO members. Furthermore, principle 16 of the 1992 Rio Declaration on Environment and Development, supported by almost all governments, calls upon states as follows:

National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

In addition, Article 31:3 of the 1969 Vienna Convention requires that for the interpretation of treaties, there shall be taken into account, together with the context, 'any relevant rules of international law applicable to the relations between the parties'. Since footnote 61 deals with energy policy, such relevant rules of international law should include the climate convention – which both the USA and the European Union accept – and the Kyoto Protocol once it enters into force. In lieu of globally harmonized environmental taxes, this might serve as an additional justification that border adjustments on energy taxes – which prevent distortions of trade and investments – should be acceptable. In summary, it seems doubtful whether the legal interpretation of the US trade representative of 1994 would prevail if, at some point in the future, the remission of European energy taxes on exported goods were to be challenged by the USA under the WTO dispute settlement system.

A different question is, however, to what degree this interpretation of border tax adjustments on exports extends to imports. The 1970 Working Party on Border Tax Adjustments found that the

GATT provisions on this matter applied the destination principle identically to both imports and exports, which is in line with the general logic of the world trade regime (GATT Working Party on Border Tax Adjustments, 1970, para. 10). Given the logical connection between border tax adjustments on exports and imports, which are practically two sides of the same coin, one might conclude that it would be defensible to apply footnote 61 of Annex II of the Agreement on Subsidies and Countervailing Measures also *mutatis mutandis* to the interpretation of GATT regarding imports.[17]

This conclusion is reinforced by the need to interpret world trade law – including the provisions on border tax adjustments regarding imports – in the context of other legal obligations of the parties, especially those obligations under widely accepted and ratified multilateral environmental agreements. Admittedly, the relationship between WTO law and multilateral environmental agreements remains disputed and is in need of further clarification (see Biermann, 2001). However, it certainly matters for the interpretation of WTO law that 95% of WTO members have ratified the climate convention, which requires industrialized countries to enact measures to limit the emission of greenhouse gases.[18] This fact should also inform the dynamic interpretation of GATT provisions on the acceptability of border adjustments for energy taxes regarding imports.

5. The appropriate level of energy tax adjustments at the border

The US experience with the Superfund and the Ozone Depleting Chemicals taxes illustrates that a border tax adjustment on production inputs is practicable despite all remaining technical problems. However, collecting the relevant data for the process-based calculation of a border tax adjustment, that is, tracing the proper amount of taxed input in the production process in the respective country of origin, is still difficult. A large number of models for the calculation of the energy content of certain products exist, yet generally with significant differences in results. Eventually, a harmonized standard applicable to a large number of countries would be needed to minimize conflicts and improve planning by market participants.

Any border tax adjustment on the embodied carbon in imports or exports would be the more complex and difficult to administer the more products and production processes are to be covered. One approach to reducing complexity could be to limit the number of products subject to border tax adjustment to a manageable level. A small range of energy-intensive products with a correspondingly limited number of production methods could make it substantially easier to administer the tax. This is seen as a feasible solution by a number of observers.[19] One approach to manage the problem, as Hoerner and Muller (1997) suggest, could be to use an energy-added tax method, similar to invoice methods for value-added tax that are used in many countries throughout Europe: a tax imposed on fuels, or embodied in the electricity used in the production process, could be recorded on the invoice (like a value-added tax) that the domestic manufacturer presents after export of the product to tax authorities for rebate. To avoid unmanageable administrative burdens, one could refrain from such border adjustments when the tax is only a trivial percentage of the product price.[20]

In the case of imports where the necessary information on the production process is limited or not provided by the exporter, the ‘predominant national method’ approach seems to be a feasible approach compatible with world trade law. The panel in the *US Superfund Tax* case found this method to be consistent with GATT. It only rejected the 5% flat-rate tax that was imposed on

unlisted substances, arguing that this imposed a higher tax on imports than on like domestic products.

6. Conclusion

Despite limited case law and some ambiguities in treaty law, it seems that if Europe embarked on a carefully designed strategy of energy tax adjustments at the border vis-à-vis non-European industrialized countries, there is a fair chance that European governments would prevail if these tax adjustments were challenged by other WTO members before the WTO dispute settlement system. This is the main conclusion of this study.[21]

Of course, the optimal solution for potential conflicts between WTO members would be to make the adjustment unnecessary in the first place. The harmonization of environmental prior-stage taxes across countries would eliminate all grounds for border tax adjustments. This, however, would require intense international co-operation and an internationally harmonized approach in energy policy. In the current political situation, such a development seems to be quite unlikely. The second-best option for the members of the Kyoto coalition, then, might be to enact border adjustments for their current and future energy tax schemes vis-à-vis countries that do not ratify the Kyoto agreement. This study has shown that despite legal ambiguities and uncertainties, world trade law would most probably permit such actions.

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Notes

1 On the Kyoto Protocol and related instruments and institutions, see, for example, Faure et al. (2003), van Asselt et al. (2004), and the related special issue of the journal *International Environmental Agreements* (vol. 4(4), 2004) with further references.
2 On 20 December 2004, the EU environment ministers reaffirmed their goal to keep global atmospheric greenhouse gas concentrations below 550 ppm CO2-equivalent, and stated that this would require emission cuts of 15% and perhaps of as much as 50% by 2050 compared with 1990 levels. See *Environment Daily* No. 1794 of 21 December 2004. On other consequences of US non-participation, see for example the analysis in Buchner et al. (2002).
3 See in general European Environment Agency (1996, 2000), OECD (1997, 1999, 2001), as well as Barker (1997), Brännlund and Gren (1999) and Jänicke and Weidner (1995), arguing that environmental taxation is especially suited for climate policy.
4 See OECD (2001), Tews and Busch (2002). Poland has also introduced a charge.
5 See *Environment Daily*, No. 1770 of 17 November 2004.
6 See Biermann and Brohm (2003) for more details. See also Dröge et al. (2004) for a detailed case study on Germany's energy legislation and world trade law.
7 We have elaborated on this in Biermann and Brohm (2003).
8 Other potential conflicts between the Kyoto Protocol and world trade law are reviewed in Brewer (2004) and Charnovitz (2003), with further references.

9 See Article 4:3 of the 1992 UN Framework Convention on Climate Change.
10 See Pitschas (1995), Hufbauer (1996), Adlung (1997), Westin (1998), Fauchald (1998) and Hoerner (1998).
11 Article VI:4 regulates the prohibition of countervailing duties in respect of border tax adjustments from exporting countries. It reads: 'No product of the territory of any contracting party imported into the territory of any other contracting party shall be subject to anti-dumping or countervailing duty by reason of the exemption of such product from duties or taxes borne by the like product when destined for consumption in the country of origin or exportation, or by reason of the refund of such duties or taxes.'
12 GATT Report of the Panel: United States – Restrictions on Imports of Tuna, 1991; GATT Report of the Panel United States – Restrictions on Imports of Tuna, 1994.
13 WTO Appellate Body Report: United States – Import Prohibition of Certain Shrimp and Shrimp Products, 1998. On this case see, for example, Biermann (2001) and Charnovitz (2002).
14 Hoerner (1998) argues that energy taxes do not fall under the category of prior-stage cumulative indirect taxes, mainly because they are not 'cumulative'. He argues that within an energy tax scheme, each unit of fuel is taxed only once, in contrast to the standard cumulative tax, the cascade tax.
15 Supported also by Demaret and Stewardson (1994).
16 Letter from Donald M. Phillips, Assistant US Trade Representative for Industry, to Abraham Katz, President, US Council for International Business, reprinted in 'U.S. secures agreement not to allow energy tax rebate', *Inside US Trade* (28 January 1994), quoted in Demaret and Stewardson (1994).
17 This is also supported by Demaret and Stewardson (1994).
18 This conclusion might differ, however, from the ruling in the *US Superfund Tax* case and other cases, which adopted a formalistic view, arguing that only the form of taxation (for example direct or indirect), but not the purpose of the tax, matters for its justification under GATT.
19 See, for example, Hoerner and Muller (1997), Hoerner (1998) and Brack et al. (2000).
20 In the case of the BTU tax legislation introduced in 1993, it was proposed to apply border adjustments on all goods for which the cost of energy exceeded 2% of the cost of production (Hoerner, 1998).
21 Supported also, as for exports, by the study of Pitschas (1995).
22 GATT 1994 covers the provisions of the GATT of 1947 along with the amendments, affiliated agreements and a protocol. In this study, GATT refers to 1994 if not mentioned otherwise.

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