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National Climate Change Policy – Are the New German Energy Policy Initiatives in Conflict with WTO Law?

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Abstract

This paper addresses German energy policy instruments and their compatibility with WTO rules. Germany and the EU are forerunners in international climate change policy and driving forces behind the 1997 Kyoto Protocol. German energy policy includes approaches to foster electricity generation from renewable resources. Our major question is whether both the policy tools currently applied (standards, taxes and subsidies) and those under consideration (labels, green certificates and border tax adjustment) are compatible with WTO rules. Our findings are that currently neither the design nor the application of the policy instruments are in conflict with WTO rules. However, the setting of production standards for electricity supply is the crucial issue in this debate and if trade in electricity increases, so will the potential for conflict. Rejecting imports because of the way electricity was produced could lead to disputes and to a need for settlements by the WTO legal system. Moreover, when introducing tools like green certificates or border tax adjustments, it is important to find the balance between effectively fostering the reduction of global emissions and eligibility under WTO law.

Keywords: Energy policy; World Trade Organization; global environmental policy; processes and production methods; labels; green certificates; taxes; border tax adjustment; subsidies.

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List of Abbreviations

ASCM	Agreement on Subsidies and Countervailing Measures
BISD	Basic Instruments and Selected Documents
BTA	Border Tax Adjustment
CIS	Community of Independent States
CTE	Committee on Trade and Environment
DISC	Domestic International Sales Corporations
EAP	Environment Action Programme
EEG	Erneuerbare-Energien-Gesetz
EnEG	Energieeinsparungsgesetz
EnEV	Energieeinsparungsverordnung
EnVGK	Energieverbrauchskennzeichnungsgesetz
EnVKV	Energieverbrauchskennzeichnungsverordnung
EnWG	Energiewirtschaftsgesetz
EPA	Environmental Protection Agency
ETR	Ecological Tax Reform
EU	European Union
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GEN	Global Ecolabelling Network
GFAVO	Großfeuerungsanlagenverordnung
GHG	Greenhouse Gas
IMO	International Maritime Organization
ISO	International Organization for Standardization
KWK	Kraft-Wärme-Kopplung
KWKG	Kraft-Wärme-Kopplungs-Gesetz
LCA	Life Cycle Analysis
NGO	Non-governmental Organisation
ODC	Ozone Depleting Chemicals
OECD	Organisation for Economic Co-operation and Development
PPM	Processes and Production Methods
PPP	Polluter Pays Principle
PSA	Price Standard Approach
SME	Small and Medium-size Enterprises
TBT	Technical Barriers to Trade
UNCED	United Nations Conference on Environment and Development
UNCTAD	United Nations Conference on Trade and Development
WTO	World Trade Organization

1 Introduction¹

The conflict between environmental policy measures and international trade liberalisation has been the subject of detailed analyses and discussions. An important aspect is how national environmental policy tools are related to obligations under world trade law as administered by the World Trade Organization (WTO). This study focuses on the new German energy policy initiatives, which aim at reducing greenhouse gas emissions using different policy instruments. Our major question is whether the new German energy policy tools already being applied (standards, taxes, subsidies) or envisaged (labels, certificates) are compatible with WTO rules. Moreover, we include border tax adjustments in our analysis, which are proposed in the literature as an instrument to avoid the negative effects of domestic energy taxes on the international competitiveness of the economy or certain sectors. However, we do not discuss the international CO₂-emission trading system, which is currently under construction. We also exclude the long-standing issue of reducing subsidies for fossil fuels and oils, especially coal.² Instead, we concentrate on new national policy instruments that foster energy efficiency and electricity generation from renewable resources in Germany.

Emissions from energy production and consumption are a major global environmental problem because they contribute to global climate change. The earth's atmosphere is a global common, and this leads to severe problems related to its protection. Global commons are characterised by an ill-fated distribution of property rights. If policy measures aim at protecting them, no one country can be excluded from the benefits. This situation leads to the well-known free-rider problem. Game theory suggests that – as long as only national interests are maximised – co-operation among nations is not a dominant strategy.³ Hence, most nations have no incentive to contribute to the protection of the Earth's atmosphere, as long as there is no co-ordination ensuring that all countries participate at least to

¹ The authors would like to thank Ingrid Hanhoff, Ulf Jäckel, Michael Kohlhaas, Volker Oschmann, Barbara Praetorius, Kai Schlegelmilch, Sabrina Shaw, Jan-Eirik Sørensen, René Vossenaar, and Hans-Joachim Ziesing for helpful comments on an earlier version of this paper.

² This would certainly be an important step to protect the climate. See for example *The Economist*, *Environmental Enemy No. 1*, (July 6th 2002).

³ Many analyses of global environmental problems therefore use the game theory concept of the prisoners' dilemma. E.g. D. Fudenberg; J. Tirole: *Game Theory*, Cambridge Mass.: MIT Press, (1991); J. Heister: *Der*

some extent. The Kyoto Protocol (1997) aims at a global reduction of greenhouse gas (GHG-) emissions according to the Polluter Pays Principle (PPP) and following the Rio principle of common but differentiated responsibilities. However, recent problems in ratifying the Kyoto Protocol and agreeing on its amendments, and the complete withdrawal of the US in 2001, have made clear once more the conflict of interest, the different judgments and the different levels of risk aversion within the group of industrialised countries, who are the major emitters of GHGs, as well as between industrialised and developing countries. All these problems hinder the implementation of optimal global policy measures.

Thus, it seems that only through decisive action by single countries or coalitions of countries can real progress be made in international climate change policy. A few countries are currently acting as forerunners. Germany in particular has included the reduction of GHG-emissions from its territory as a central policy goal in its energy policy.⁴ This is expressed in several laws:

- the *Ecological Tax Reform* (ETR) increased taxes on electricity and fossil fuels on a yearly basis from 1999 to 2003;
- the *Renewable Energies Act* (Erneuerbare-Energien-Gesetz (EEG)) and the *Cogeneration Act* (Kraft-Wärme-Kopplungsgesetz (KWKG)) use price guarantees or price mark-ups as their main policy instrument to save energy or use it more efficiently;
- the *Großfeuerungsanlagenverordnung* (GFAVO) sets emission standards for sulphur dioxide (SO₂), nitrogen oxide (NO_x), dust, carbon monoxide, fluorides and chlorides in large combustion plants based on coal, oil and natural gas;
- the *Energieverbrauchskennzeichnungsgesetz* (EnVKG) and the *Energieverbrauchskennzeichnungsverordnung* (EnVKVO) specify rules concerning energy consumption in the use of products and labelling requirements;
- the *Energieeinsparungsgesetz* (EnEG) and the *Energieeinsparverordnung* (EnEV) regulate the saving of energy and the insulation of buildings, respectively;
- the *Energiewirtschaftsgesetz* (EnWG) regulates electricity and gas supplies – but is not primarily concerned with environmental goals.

In order to make national policies more effective, it is necessary to co-ordinate or even to harmonise efforts internationally. In such a process, in order to prevent conflicts between

internationale CO₂-Vertrag. Strategien zur Stabilisierung multilateraler Kooperation zwischen souveränen Staaten, Tübingen, (1997).

⁴ See *Bundesministerium für Wirtschaft und Technologie*: <<http://www.bmwi.de/Homepage/Politikfelder/Energiepolitik.html>>.

trade and environmental policies, the PPP could be an important principle.⁵ So far, WTO rules do not include this principle. And neither the 1992 UN Framework Convention on Climate Change nor the 1997 Kyoto Protocol explicitly require or endorse specific trade-relevant policies. Parties are obliged, however, to enact policies and measures to achieve the ultimate objective of the climate convention, while at the same time maintaining an open trading system. As long as there is no internationally institutionalised approach to the integration of these policy fields, the analysis of national policies and their international effects is necessary on a case-by-case basis.

The next section gives a short overview on WTO rules and principles relevant to the analysis of German energy policy. In sections 3 to 7, we analyse the compatibility of national command and control measures, labels, certificates, taxes, and subsidies with WTO rules respectively. The paper concludes with some final remarks in section 8.

2 Relevant WTO Principles

This section highlights the most important concepts, principles and definitions in the WTO regime that are relevant for our discussion.

2.1 Basic Principles

The WTO trade regime relies on several basic principles. The most relevant for our study are the most-favoured nation principle in Article I (1) GATT and the national treatment principle in Article III (4) GATT.

Article III (4) GATT states that

“The products of the territory of any contracting party imported into the territory of any other contracting party shall be accorded treatment no less favourable than that accorded to like products of national origin in respect of all laws, regulations and requirements affecting their internal sale, offering for sale, purchase, transportation, distribution or use. [...]”

Article I (1) GATT states that

“[...], any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.”

⁵ R. A. Westin: *Environmental Tax Initiatives and Multilateral Trade Agreements: Dangerous Collisions*, The Hague, London, Boston, (1997), p. 57 f.

2.2 Standards and Technical Regulations

There are three kinds of standards that can distinguish a product under WTO law:

- First, *product standards*, which determine certain characteristics of a product during its consumption.
- Second, *product-related standards*, which address those characteristics of a good that are determined by the production methods and are incorporated into the product.
- Third, *non-product-related standards*, which are related to the production methods used but not to the good itself.

The latter two are both standards on processes and production methods (PPMs), but they are sometimes treated differently under WTO law.

A definition of standards and technical regulations is included in the Agreement on Technical Barriers to Trade (TBT Agreement), a side agreement to the GATT. As a rule, all standards regulated by these agreements must be applied in accordance with the GATT most-favoured nation and national treatment principles. Both definitions, Annex 1.1 and 1.2 TBT Agreement, include PPMs as criteria for the differentiation of products. However, neither definition makes it clear whether non-product-related standards are subject to TBT rules. Based on the negotiation history of the TBT Agreement and on the panel rulings on “like products”⁶, several studies conclude that non-product-related criteria are not standards that are allowed to distinguish products as being “unlike” under the TBT Agreement and GATT⁷. Nevertheless, as the Asbestos Case (Canada – France 2001)⁸ implies, national law can distinguish products based on PPMs and it can apply the same distinction to imports. Only if there is discrimination of imports due to this approach are these standards incompatible with WTO Law.⁹

⁶ WTO-Alcoholic Beverages Panel: *Report of the Panel, Japan - Taxes on Alcoholic Beverages*, WT/DS8/R, WT/DS10/R, WT/DS11/R, (11 July 1996).

⁷ A. Michaelowa: *Trade and Labelling of Timber and Timber Products*, *Aussenwirtschaft* 52(4), (1997), 561-581; S. W. Chang: *GATTing a Green Trade Barrier Eco-Labelling and the WTO Agreement on Technical Barriers to Trade*, *Journal of World Trade* 31(1), (1997), 137-159; S. Dröge: *Ecological Labelling and the World Trade Organization*, *Aussenwirtschaft* 56(1), (2001), 99-122.

⁸ WTO-Appellate Body: *EC – Measures Affecting Asbestos and Asbestos Containing Products*, WT/DS135/AB/R, (12 March 2001).

⁹ R. Howse, E. Tuerk: *The WTO Impact on Internal Regulations - A Case Study of the Canada-EC Asbestos Dispute*, in: G. De Búrca, J. Scott (eds.): *The EU and the WTO: Legal and Constitutional Issues*, Oxford, (2001), 283-328, p. 289.

2.3 The Term “like products”

The term “like products” is included in Article III GATT and other WTO rules on trade in goods, and it occurs sixteen times throughout the GATT texts. The term was never clearly defined. In 1970, the Working Party on Border Tax Adjustments recommended a case-by-case examination of problems arising from the interpretation of this term.¹⁰ It defined four criteria for the “likeness” of products:

- (i) *the properties, nature and quality of the products;*
- (ii) *the end-uses of the products;*
- (iii) *consumers’ tastes and habits; and*
- (iv) *the tariff classification of the products.*¹¹

These criteria were also used in the most recent ruling concerning “likeness”, the Asbestos Case, which shed a new light on the issue. The Appellate Body pronounced that the evidence on each of the four criteria should be examined and then weighed together with any other evidence in order to determine whether a product could be regarded as "like".¹² According to the Appellate Body, other criteria might be added to analyse whether two products are “like” or not¹³.

2.4 Exemptions from Basic Principles

Exemptions from the basic principles can be made for “*measures necessary [...] for the protection of human, animal or plant life or health, or the environment [...]*”, which must not lead to “*arbitrary or unjustifiable*” discrimination between countries (Preamble of the TBT Agreement). The same exception is stated in Article XX GATT. For German energy policy aiming at the reduction of a global environmental problem this exception could become a last resort in cases, where the policy measures were held inconsistent with WTO provisions.

¹⁰ BISD - Basic Instruments and Selected Documents (GATT/WTO): *Decisions, Reports, etc. of the 16th and 17th Sessions. Review Pursuant to Article XVI:5.* Geneva, (1997), para. 18.

¹¹ *Ibid.*, para 18 and see *supra*, footnote 8, para. 101.

¹² In the Asbestos case, another important evidence was that toxicity is “*a defining aspect of the physical properties*” of asbestos fibres. See World Trade Institute: *Appellate Body Report. European Communities – Measures Affecting Asbestos and Asbestos-Containing Products.* WorldTradeLaw.net Dispute Settlement Commentary (DSC). <<http://worldtradelaw.net>>, (2001); S. Shaw, R. Schwartz: *Trade and Environment in the WTO. State of Play*; *Journal of World Trade* 36(1), (2002), 129-154, p. 150.

¹³ See *supra* 8, para. 102.

The scope of these provisions has been analysed at great length in the literature.¹⁴ A central distinction needs to be made between those trade measures that are enacted unilaterally, and those that are required by a multilateral environmental agreement.¹⁵ There are various options for a reform of Article XX that would assist in delineating unilateral and multilateral action, including a proposal for a Declaration of Interpretation of Article XX through the WTO assembly.¹⁶ Even if this clear distinction existed, the issue remains whether trade-relevant environmental policies—especially in the context of national energy policy—would be defined as a unilateral measure or as a measure covered by a multilateral environmental agreement.

3 Command and Control Policies

3.1 Definition and Application in Germany

Command and control policies are still the most widely used instrument in environmental policy, even though the use of market-oriented policy instruments (like taxes and information tools) has increased over the last decade. The term “command and control” refers to laws and regulations on environmental standards. Non-compliance with these standards usually results in sanctions.¹⁷

There are two types of measures available within the framework of command and control policies: prohibitions and commandments. Both are political measures linked to the PPP, because the costs of fulfilling a standard are borne by the polluter. Prohibitions are the strongest instrument used to achieve environmental goals. They are used either to ban toxic or hazardous material completely or to enable immediate measures to prevent risks to human

¹⁴ See WTO-Appellate Body: *EU Measures Concerning Meat and Meat Products (Hormones)*; Report of the Appellate Body AB-1997-4, WT/DS26/AB/R, WT/DS48/AB/R, (16 January 1998).

¹⁵ WTO-Appellate Body (1998a): *United States - Import Prohibition of Certain Shrimp and Shrimp Products*; Report of the Appellate Body AB-1998-4, WT/DS58/AB/R from 12 October 1998, 38 *ILM* 118 (1999). See for an extended argument on *Shrimp/Turtle*. F. Biermann: *The rising tide of green unilateralism in world trade law: Options for reconciling the emerging North-South conflict*; *Journal of World Trade* 35(3), (June 2001), 421-448. See also with different assessments S. Cone: *The Appellate Body, the Protection of Sea Turtles and the Technique of 'Completing the Analysis'*, *Journal of World Trade* 33(1), (1999), 51-61; R. Howse: *The Turtles Panel: Another Environmental Disaster in Geneva*, *Journal of World Trade* 32(1), (1998), 73-100; K. Jones: *Trade Policy and the Environment: The Search for an Institutional Framework*, *Aussenwirtschaft* 53, (1998), 409-434.

¹⁶ See W. Althammer, F. Biermann, S. Dröge, M. Kohlhaas, *Handelsliberalisierung kontra Umweltschutz? Ansätze für eine Stärkung umweltpolitischer Ziele in der Welthandelsordnung*, Berlin: Analytica, (2001); and Biermann, *supra*, footnote 15.

health. Potential victims of pollution are protected to the highest possible degree. Commandments regulate emissions through rules fixed in law, in order to obtain a certain level of emissions. They can regulate the emissions directly (emission standards) or indirectly through standards on PPMs. Also, the composition of the product itself (product standards) can be controlled by laws and regulations concerning, for example, the amount of harmful substances they contain.

Traditionally, command and control policies are regarded as being effective, easy to manage, relatively simple to impose and broadly accepted by the population.¹⁸ However, from a welfare economic point of view they are inefficient because the policy goal will not be obtained at minimum cost for society. Also, emission standards do not provide an incentive to reduce emissions below the levels fixed by law nor do they require the polluter to pay for residual pollution.

German environmental policy has a long tradition in using command and control measures. Within the framework of the German climate change policy, there are a number of laws and regulations (see section 1) that have been introduced or revised during the last decade. They use standards or rules to regulate emissions from energy consumption or from energy production.

3.2 Potential Conflicts with WTO Law

Potential conflicts of national command and control energy policies with WTO law could arise from the type of standard used and the way the standard is applied to foreign products.

In principle, the WTO approach is that every country is free to protect its population through *product* and *product-related standards*, if these standards are not applied in a discriminatory manner against foreign suppliers. This means that a foreign product can be rejected at the border only if this type of product is domestically forbidden as well. In principle, the same rules apply to *non-product-related standards* on processes and production methods (PPMs). However, these standards do not constitute a characteristic of a product according to WTO interpretation of term "like products". As a consequence, a country can

¹⁷ M. G. Faure: *Environmental Regulation*, Maastricht University, (1998), Chap. 2300, 443-520, p. 453.

¹⁸ L. Wicke: *Umweltökonomie: Eine praxisorientierte Einführung*, Munich, (1993), 4th Edition, p. 201 f.

determine such domestic standards for domestic producers, but their application as a standard to distinguish domestic from imported goods is in general not part of the "like product" concept under WTO rules.

From a purely environmentalist perspective the logic behind the current WTO approach could be seen as flawed. If emissions, e.g. from power generation, damage a global common in the production process but not through the use of the final product, non-product-related instruments, such as production standards or taxes, are the only measure available to protect the environment. On these grounds, some authors¹⁹ argue that even unilaterally applied standards with extraterritorial effects (e.g. standards prescribed by an importing country exclusively for production processes abroad) could be justified if an exporting country is not internalising the external costs of production, and that such standards could be justified through the preamble of the Agreement on Technical Barriers to Trade (TBT Agreement) and through the Article XX (b) or (g) GATT. This view may also be supported by the decision of the WTO Appellate Body in the *Shrimp-Turtle Case*²⁰.

However, given the complexities of the international system, a multilateral approach is most likely the only way to advance climate change policies in the field of energy-related emissions. The general exception from GATT rules under Article XX should provide scope for multilateral environmental agreements (MEAs) like the Kyoto Protocol, but not for unilateral action on non-product-related standards. The relationship between WTO rules and specific trade obligations set out in MEAs, however, is not clearly defined. It is subject to negotiations in the forthcoming WTO trade round.²¹ At least 11 MEAs contain trade-related measures.²² To allow for environmental trade measures based on non-

¹⁹ C. Wofford: *A Greener Future at the WTO: The Refinement of WTO Jurisprudence on Environmental Exceptions to GATT*, Harvard Environmental Law Review 24, (2000), 563-592, p. 583 f.

²⁰ WTO-Appellate Body, *supra*, footnote 15; S. Charnovitz: *The Law of Environmental "PPMs" in the WTO: Debunking the Myth of Illegality*. The Yale Journal of International Law 27(59), (2002), 59-110, p. 95f.

²¹ This is part of the Doha Mandate on Trade and Environment as declared at the 4th WTO Ministerial Conference in Doha, November 2001. The Cartagena Protocol is the only MEA so far, which makes a clear statement on its status vis-à-vis the WTO in its preamble: "... trade and environment agreements should be mutually supportive with a view to achieving sustainable development, [...], the above recital is not intended to subordinate this Protocol to other international agreements, [...]" Cartagena Protocol on Biosafety to the Convention on Biological Diversity (2000).

²² They include: the Montreal Protocol (1987); the Convention on International Trade in Endangered Species (1973); the Basel Convention (1989); the International Plant Protection Convention (1951, 1979, 1997); the UN Fish Stock Agreement (1995); the International Tropical Timber Agreement (1994); the International Commission for the Conservation of Atlantic Tunas (1966); the Convention on the Conservation on Antarctic Living Marine Resources (1980); the Cartagena Protocol on Biosafety; the Stockholm Convention on

product-related PPMs under WTO law, a specific reference in WTO rules to obligations under MEAs seems to be the appropriate way.

The application of standards on the national level does not conflict with WTO law as long as it does not discriminate against imported like products. German command and control instruments for energy production and consumption are applied to domestic goods and production technologies. The regulations apply to domestic and foreign providers of these goods alike (e.g. for heating technologies or combustion plants). They are neither designed nor applied to discriminate between domestic and foreign products. Also, there is no application of non-product-related PPMs to foreign producers.

The regulation of processes and production methods (PPMs) which addresses the polluters is an important instrument for climate change policies. The Shrimp-Turtle and the Asbestos Case indicate that standards on PPMs are not *per se* illegal under WTO law, but rather that this legality depends on whether a PPM-standard is based on an environmental rationale and whether its implementation is in line with the basic requirements of the WTO law.²³ Unilateral standards on PPMs that discriminate for example between electricity imports from single countries based on energy generation technology (e.g. solar or nuclear energy) currently seem not to be compatible with WTO regulations. The rationale is that international trade rules should be as transparent and as multilaterally accepted as possible, and that different process-related standards could run counter to the world trading system, since they would force exporters to produce according to different national standards that constitute a non-tariff trade barrier. The new German command and control instruments for energy production and use do not include these measures. Rather there are a number of new tools whose application may be in conflict with WTO rules. We discuss these in the following sections.

Persistent Organic Pollutants (2001) and the Rotterdam Convention (1998). W. Althammer; S. Dröge: *International Trade and the Environment: the Real Conflicts*, in: M. Rauscher et al. (eds.): *Environmental Policy in an International Perspective*, Dordrecht: Kluwer, (2003), Biermann, *supra*, footnote 15.

²³ Charnovitz, *supra*, footnote 20, p. 110.

4 Labelling

The ecological labelling of products has a long tradition in Germany, starting with the introduction of the Blue Angel in 1977. The labelling of electricity now plays an increasing role in national energy policy due to the existence of two trends. First, one way to achieve the reduction of greenhouse gas emissions is the promotion of renewable energy sources. Labelling helps to identify these energy sources. Second, electricity markets were liberalised at both the national and international level during the last decade. This has led to a concentration of national suppliers and networks through mergers and acquisitions, and to increasing competition at the European and international level. As a result, consumers now need more information to be able to choose between the different national and foreign electricity suppliers available. Labels are a tool to provide this information. Yet, implementing “green” energy labelling at a national level requires a clear procedure based on the registration and monitoring of producers’ activities. The control problems increase if the labelling of imported power has to be considered too.

4.1 Definitions

Ecological labels are an information tool for all kinds of products that helps buyers and suppliers distinguish products according to their impact on the environment. They are either based on a broad life-cycle analysis or on selected criteria. When talking about *ecological labelling*, we refer to “*the use of labels in order to inform consumers that a product is determined by a third party to be environmentally more friendly relative to other products in the same category*” as defined by UNCTAD (1994). The International Organization for Standardization (ISO) distinguishes between three different types of ecological labels, but only *type I* matches the UNCTAD definition: “*Type I is the eco-seal awarded as a license and based on a labelling programme*”.²⁴

Most labelling programmes are voluntary and firms are free to participate if they wish to do so. It is important for the purposes of trade law analysis to distinguish between *voluntary* and *compulsory* labels (see table 1), because this distinction is found in WTO law.²⁵

²⁴ Type II is the self-declaration claim made by producers, importers, and retailers on products and services, type III is the report card label, which gives information according to fixed indices, similar to general consumer information on product packages. Cited from OECD: *Eco-Labeling: Actual Effects of Selected Programmes*, OECD/GD(97)105, Paris: OECD, (1997), p. 9 f.

²⁵ See footnote 30.

Moreover, voluntary labels can comprise three categories: they can be either governmental, or private, or quasi-governmental.²⁶

Table 1: Examples of different types of labels

	governmental	private
compulsory	<ul style="list-style-type: none"> - <i>Proof of Origin for Electricity</i> (Austria) - <i>Energy Guide</i> (USA) - <i>Energieverbrauchskennzeichnung</i> (Germany) 	---
voluntary	<ul style="list-style-type: none"> - <i>Blue Angel</i> (Germany) - <i>Nordic Swan</i> (Sweden) 	- <i>Green Seal USA</i> (USA)

Compulsory labels are command and control measures. They require that certain standards and regulations are met by producers. Otherwise the label will not be granted and a producer will be denied market access. *Voluntary* labels leave it up to each individual producer to choose whether to meet the ecological criteria for a specific programme and to use the label for marketing purposes.

Labels can provide important information on both production processes and direct product characteristics. In many cases, ecological programmes attempt to apply life-cycle analyses (LCA), which are designed to include all possible information on a product’s environmental impacts from “cradle to grave”, e.g. generation of inputs, production processes, waste disposal, and disposal of the product after its use. Most schemes, however, simply pick out certain environmental effects from production, since in many areas a complete life-cycle assessment is difficult and expensive to conduct.²⁷

²⁶ The EPA (Environmental Protection Agency, US) labels mixed schemes involving governmental agencies and NGOs as “quasi-governmental”; for more examples see WTO-CTE: *Information Relevant to the Consideration of the Market Access Effects of Eco-Labeling Schemes*, Note by the Secretariat, (29 June 2000), WT/CTE/W/150.

²⁷ G. Mullett: *ISO 14000: Harmonizing Environmental Standards and Certification Procedures Worldwide*, Minnesota Journal of Global Trade 6, (1997), 379-400, p. 383

4.2 Application in Germany

The labelling of the energy consumption of products was introduced in 1998 by the *Energieverbrauchs-kennzeichnungsgesetz* (EnVKG) and the *Energieverbrauchs-kennzeichnungsverordnung* (EnVKV). In the *Blue Angel* scheme, energy efficiency has always been a criterion for judging the environmental impact of different products. The labelling of electricity according to its origin and production became popular with the liberalisation of electricity markets, but it is not yet fully established. The German electricity market was liberalised in 1998, enabling consumers to choose between different suppliers. Consumers can also choose between different “packages”, with varying flat rates and pricing structures. Following the demand for more information on the origin of electricity, the product range is now also being differentiated accordingly. As part of this process, labelling schemes have become increasingly important for supplying information on “green” electricity — stemming from renewable sources like water, sun or wind.

There is an ongoing debate on the criteria that should be used when setting up a labelling programme for “green” electricity. Electricity is a homogenous good that does not incorporate any characteristics of its production method. In order to attach to the product the energy generation process as a characteristic, control and certification of different electricity sources are necessary. Only this would lead to separate markets for electricity from different sources. The criteria for “green” production, i.e. production based on renewable resources, could include:

- the reduction of greenhouse gas emissions,
- resource intensity,
- processes and procedures related to the set-up of new capacities (production of solar cells, the construction of hydropower stations, etc.).

Such criteria could be implemented using quotas, for example by setting a share of new high-tech power stations in the overall production portfolio of a regular supplier in order to tackle greenhouse gas emissions; or by using a range of environmental data for the local ecological impact of specific power stations, like hydrostations.

For the labelling of electricity, several initiatives by *non-governmental* organisations exist.²⁸ They all aim at creating a market for clearly identifiable “green” electricity. However, they also include electricity from block-type thermal power stations and other combined heat and power stations, which also use non-renewable sources like coal or gas. This is justified by the high degree of efficiency of these combined heat and power technologies. This example shows that a clear distinction is needed between electricity from renewable sources and from non-renewable sources using a higher-than-usual efficient technology. Otherwise, labels lead to inconsistencies that do not comply with the labelling criteria mentioned.

Mandatory labelling of energy consumption can be found in the German *Energieverbrauchs-kennzeichnungsgesetz* (EnVKG, *Law on Labelling and Limits of Energy Consumption*). It stipulates that additional information has to be provided by producers on the consumption of energy and other resources as well as CO₂-emissions for all technical devices and vehicles. Germany also has to comply with the EU directive 2001/77/EC (27.9.2001), which stipulates that EU-members shall ensure that *guarantees of origin* for traded electricity from renewable energy sources can be issued on request. These proof of origin certificates are compulsory and have to be introduced by the end of 2003 in all EU member countries.

4.3 Potential Conflicts with WTO Law

Trade-related impacts of eco-labels or proof of origin are all measures that make market entry for foreign firms more costly and foreign products less competitive. The following barriers to foreign companies are relevant.

- **Information.** Access for foreign producers to information on *voluntary eco-labelling schemes, proofs of origin* and *tradable green certificates* in their target markets can be a problem.
- **Standards.** Regulations like *proof of origin* requirements for specific products could be applied to domestic and to foreign products in a discriminatory way, e.g. by asking foreign suppliers to meet higher labelling standards than domestic suppliers. These bar-

²⁸ Examples are “Grünstrom” of the *Institut für angewandte Ökologie e.V.*, *Grüner Strom Label* by *EURO-SOLAR, BUND, NABU*; “*Gütezeichen für Ökostrom*” of the *Öko-Institut/Bremer Energie Konsens*.

riers can also be indirect. For example, if a label will only be awarded if specific processes and production methods (PPMs) based on domestic conditions are met, foreign firms may be excluded.²⁹

- **Participation.** Foreign firms can face direct barriers to market access, e.g. if a *labelling* or a *green certificate* scheme explicitly excludes foreign producers.

There are no explicit trade rules on green product labelling. WTO rules applicable for labelling can be found in the TBT Agreement and in the GATT. The TBT Agreement states that WTO-members are supposed to co-ordinate the introduction and application of national standards and technical rules at an international level. Moreover, a system of mutual information and consultation exists so as to support the transparency of national measures.

According to the TBT Agreement, voluntary programmes and their criteria are regarded as *standards*, while mandatory labels fall under the category of *technical regulations*.³⁰ WTO rules are only applicable to those national policies that affect international trade.³¹ Private non-governmental voluntary labelling initiatives cannot be directly addressed via WTO mechanisms, because trade distortion alone does not automatically lead to measures under WTO law. Such conflicts are an issue for bilateral consultation instead.

The legal texts do not explicitly refer to labels based on specific programmes, but rather to all kinds of labels with product information. Declaring a product as environmentally friendly can result from three different but interrelated grounds: *product criteria* (i.e. consumption externalities), *product-related criteria* (i.e. externalities stemming from production, which are incorporated in the product), and *non-product-related criteria* (i.e. produc-

²⁹ This can cause severe barriers to market access, especially for firms from developing countries. Industrial countries' production standards are not usually relevant for some countries either due to different environmental conditions or due to the actual production technologies.

³⁰ A *technical regulation* is a "Document which lays down product characteristics or their related processes and production methods, including the applicable administrative provisions, with which compliance is mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method." (Annex 1.1 to the TBT Agreement). A *standard* is a "Document approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for products or related processes and production methods, with which compliance is not mandatory. It may also include or deal exclusively with terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method." (Annex 1.2 to the TBT Agreement). The explanatory note to Annex 1.2 states that "For the purpose of this Agreement standards are defined as voluntary and technical regulations as mandatory documents."

³¹ M. Buck, R. Verheyen: *International Trade Law and Climate Change – A Positive Way Forward*, FES-Analyse Ökologische Marktwirtschaft, (July 2001), p. 15.

tion externalities not incorporated in the final product). Non-product-related issues are especially relevant for life-cycle analyses. These categories are subject to different treatment under WTO law (see section 2.2). Several studies conclude that non-product-related criteria found in ecological labelling programmes are not included in the standards permitted to distinguish products under the TBT Agreement.³² This conclusion is based on the negotiation history of the TBT Agreement and on the panel rulings on the term “like products”. Nevertheless, as long as there is no explicit ruling that prohibits distinguishing products based on non-product-related standards, their violation of the TBT Agreement is an open issue.

Mandatory labelling, as opposed to voluntary labelling, of a product’s process and production method is subject to TBT rules³³, because mandatory labels are technical regulations under the TBT Agreement – regardless of the product to which the labelling applies. TBT rules state that technical regulations must involve "treatment no less favourable than that accorded to like products of national origin" (Article 2.1 TBT Agreement) and that there should not be "unnecessary obstacles to international trade" (Article 2.2 TBT Agreement). This would mean that rules for proofs of origin for energy suppliers must not discriminate against foreign suppliers.

The investigation into voluntary ecological labelling has to go beyond the TBT Agreement. Do basic GATT-rules apply to those ecological labelling programmes, which are not covered by the TBT Agreement? In the *Tuna-Dolphin* conflict (1991), Mexico felt discriminated by the US “Dolphin-safe” label and referred to Article I GATT (the most-favoured nation principle). The GATT-panel³⁴, however, rejected this claim on the ground that the label was granted irrespective of the country of origin of the canned tuna.³⁵ Thus, whether or not a voluntary eco-label contradicts the most-favoured nation principle depends on whether or not one country helps another country to gain advantages from selling

³² See *supra*, footnote 7.

³³ See *supra*, footnote 30.

³⁴ GATT Tuna Panel: *United States – Restrictions on Imports of Tuna*; Report of the Panel, 30 ILM 1594 (1991).

³⁵ F. Altemöller: *Handel und Umwelt im Recht der Welthandelsorganisation WTO. Umweltrelevante Streitfälle in der Spruchpraxis zu Artikel III und Artikel XX GATT*, Frankfurt am Main, (1998), p. 254; and Chang, *supra*, footnote 7, p. 150.

the labelled product.³⁶ Therefore the information given by a label on the production method (non-product-related PPM) is not relevant for the most-favoured nation clause.

There have been no explicit statements to date by WTO dispute settlement bodies on Article III (4) GATT (the national treatment principle) with respect to trade effects of non-product-related labelling criteria. However, as already mentioned, decisions have been made on the likeness of products (in the Alcoholic Beverages Case and the Asbestos Case). In general, identical goods produced with different methods are regarded as "like products". Labels which are designed to differentiate goods using the PPMs would therefore not automatically lead to a differentiation in WTO terms. However, this does not generate a conflict as long as domestic and foreign like products, as a group, are not treated differently.³⁷

If consumers refuse to buy a product, because the country of origin does not apply a certain production method, discrimination takes place, but Article III (4) is not applicable. Article III (4) also prescribes that equal treatment should comprise "... all laws, regulations and requirements affecting their internal sale, offering for sale, purchase...". The term 'affecting' has been interpreted very broadly and this term has created scope for non-compliance with national treatment obligations under Article III (4) for labels that help to discriminate foreign products based on non-product-related PPMs.³⁸

Nevertheless, even if GATT basic principles were violated, one can always fall back on the general exemptions in Article XX GATT. As there has been no conflict over ecological labelling so far, the relevance for Article XX GATT has not yet been investigated.

³⁶ Chang, *supra*, footnote 7, p. 151; C. Tietje: *Voluntary Eco-Labeling programmes and Questions of State Responsibility in the WTO/GATT Legal System*, Journal of World Trade 29(1), (1995), 123-157. The panel did not agree that the stated influence of the US-government on application of dolphin-safe products existed and therefore could not find that obstruction of the most-favoured nation principle had taken place. Labelling criteria were fixed under the Dolphin Protection Consumer Information Act (DPCIA).

³⁷ Howse and Tuerk, *supra*, footnote 9, p. 289. Such a conflict could be observed when tropical timber became subject to a mandatory national label in Austria in 1992, which required sustainable forestry as production method. Malaysia felt discriminated by this mandatory label and claimed that application of the criterion "sustainable forestry" is not in accordance with Article III (4), because the forestry method used is not a characteristic of the wood itself, if this method is not an international standard and it is not applied to other types of wood. However, no ruling was made by the panel as Austria and Malaysia managed to find a settlement. Mullet, *supra*, footnote 27, p. 393; L. Sucharipa-Behrmann: *Eco-Labeling Approaches for Tropical Timber: The Austrian Experience*, in: OECD: *Life-Cycle Management and Trade*, Paris: OECD, (1994), 55-58, p. 56.

³⁸ Chang, *supra*, footnote 7, p. 153; Tietje, *supra* 36, p. 140.

It can be concluded that a clear statement on the legality of “green” electricity labelling under WTO rules is not possible and that only a dispute settlement procedure would add more clarity to this point. Currently, electricity labelling schemes in Germany are not mandatory. If such initiatives were enacted under public German law, as opposed to by purely private initiatives, other countries would be able to challenge them based on the TBT Agreement or general GATT principles. However, if no WTO member lodges a complaint, the WTO will not intervene.

The EU-wide introduction of proofs of origin for energy from renewable resources (EU directive 2001/77/EC) is mandatory and thus a *technical regulation* according to WTO law. This treatment is independent from the subject of the label, i.e. a proof of origin can be demanded for any production method. The requirement to supply a proof of origin conforms with WTO law as long as there is no discrimination against suppliers from other WTO member countries.

4.4 Conclusions and Policy Options

Labels help to inform consumers and other interested parties about the environmental impacts of a product. This tool is becoming popular with non-governmental German actors in order to distinguish otherwise homogenous electricity according to the production method used. Their major goal is to foster renewable power generation by establishing and broadening markets for "green" electricity.

A clear distinction has to be made between labels based on labelling programmes and mere proofs of origin. There is no reference to ecological labelling in WTO law as such. Its compatibility depends instead on the TBT agreement, which deals with standards and technical regulations, and on the basic principles of the GATT. Mandatory labels are fully covered by WTO law and their application is allowed as long as there is no discrimination against foreign suppliers. It is, however, not clear whether voluntary labels with specific emphasis on non-product-related processes and production methods are covered by WTO rules. A clarification would only be possible if a complaint was lodged with the dispute settlement bodies. Standards on PPMs can cause conflict under WTO law if other WTO members feel discriminated. Currently, the resolution of such conflicts would depend on the legal interpretation by WTO dispute settlement bodies of non-product-related standards and their validity to distinguish otherwise "like" products.

A long-term policy perspective for labelling of environmentally friendly electricity generation should be international co-ordination. This would make compliance of labels with international trade rules easier and it would lead to greater transparency in worldwide electricity production. The concept of a “green single subject label” for electricity production methods and the creation of internationally agreed criteria should be further analysed and discussed.

5 Green Certificates

5.1 Definition

Certificates are a crucial tool of international climate policy. The Kyoto Protocol stipulates the introduction of internationally tradable CO₂ emission rights.³⁹ The concept of green certificates is similar to that of tradable pollution permits, the difference being that green certificates document the number of electricity units produced in an environmentally friendly manner, instead of certifying units of pollution rights.⁴⁰ The electricity units are sold at market rates but producers receive additional revenues from the certificate market. Demand for green certificates could be caused by domestic regulation of the energy sector. By setting quotas, which determine the share of electricity stemming from renewable resources, producers are forced to either buy certificates from green producers or – guided by certificate prices – invest in green technologies and sell green certificates themselves. In any case, by introducing green certificates, a government enables producers to meet this obligation without immediate changes of production technologies.

Besides the information on the power units generated, green certificates can be designed to

- include information about the type, location and point in time of power generation;
- be tradable across suppliers and across national borders.

³⁹ See Buck and Verheyen, *supra*, footnote 31, for a detailed analysis of WTO-issues related to CO₂ emission trading.

⁴⁰ It is an open issue how "green" electricity imports should be taken into account in a country's GHG-balance under the Kyoto Protocol. Bräuer et al. find that the co-existence of markets for CO₂-emission rights and for green certificates will lead to inefficiencies. The option to refinance the emission obligations in either the green certificate or the CO₂ emission market leads to suboptimal choice of technologies. See W. Bräuer; M. Stronzik; A. Michaelowa: *Die Koexistenz von Zertifikatemarkten für grünen Strom und CO₂-Emissionen – wer gewinnt und wer verliert?*, HWWA Discussion Paper No. 96, (2000).

5.2 Application in Germany

So far, in Germany no green certification system has been implemented, although these certificates are part of the policy debate. Support mechanisms from the *Renewable Energies Act (EEG)* have instead been used to foster the production of renewable energy. This law guarantees a minimum price per unit of power from renewable sources and allows grid operators to buy any amount supplied to them at this price. Thus there is no explicit targeting of quantities (see also discussion in section 7).⁴¹ However, the current German support measures for renewable power generation are also guided by the targets stipulated by the European Union White Paper (12 per cent of gross energy consumption in 2012 should stem from renewable sources).⁴² Improved effectiveness in reaching this goal could be achieved by green certification, because this enables the targeted amounts to be clearly assigned and gives electricity producers incentives to invest in green technologies based on the certificate market price. A Europe-wide system of tradable green certificates, the Renewable Energy Certificate System (RECS), has been under construction since 1998. The participants are members from European energy companies, governments and energy consultants.⁴³

5.3 Green Certificates and WTO Rules

As no international green certificate trading system exists at present, it is only possible to make some preliminary considerations regarding WTO law.⁴⁴ The first question would be whether green certificates should be regarded as "goods" (or "commodities" or "products") under the GATT 1994 or as a "service" under the General Agreement on Trade in Services (GATS 1994). Green certificates are derivatives of the product "electricity" from renewable sources. A warranted amount (proportion) of green electricity is subject to trading, but the physical power is sold and distributed separately.

⁴¹ Regular power suppliers and networks are forced to distribute this "green" energy and the extra costs of supporting these technologies are born by consumers (who are charged 0.01 €/kWh extra for all electricity). An example of how the share of specific "green" energy can be calculated is given in *Öko-Mitteilungen: Informationen aus dem Institut für angewandte Ökologie e.V., No. 3+4, (1999), p. 7.*

⁴² See European Commission: *Energy for the Future: Renewable Sources of Energy, White Paper for a Community Strategy and Action Plan, COM(97)599 final, (1997).*

⁴³ "RECS provides a mechanism for representing a specific instance of the production of a megawatt hour of renewable electricity by a unique certificate which can be transferred from owner to owner before being used as proof of generation, or exchanged for financial support." See <<http://www.platts.com/features/greencertificates>> and <<http://www.recs.org>>.

If one assumes that tradable green certificates can be treated as products under the GATT, the basic principles for trade in goods apply: most-favoured nation treatment and national treatment. However, tradable green certificates may also be considered as falling under the GATS. According to Article I of the GATS there are four modes of supply: cross-border supply, consumption abroad, commercial presence and the temporary movement of natural persons.⁴⁵ The approach to the liberalisation of services in the GATS is based on a list of commitments in specific sectors. If a country does not put a sector on this list, it is not willing to negotiate on any of the four foreseen modes of market access for this specific topic. Energy supply and related issues such as green certificates are currently not listed by any WTO member. If trade in green certificates were to be listed under GATS, basic trade principles - as under the GATT - would apply: most-favoured nation treatment (Article II GATS), market access (Article XVI) and national treatment (Article XVII) for "like services" of any other member country.

Under both GATT and GATS rules, it is relevant how a national certificate trading systems regulates the access for foreign and domestic competitors. Compliance with WTO rules is not fulfilled if quantitative restrictions on trade for foreign sellers of certificates exist or if domestic market access is regulated in a discriminatory way against providers from different countries. Therefore, if the design of a national and international system for tradable green certificates is to comply with WTO rules, either mutual recognition of national certificates and their underlying criteria for renewable energy sources, or harmonisation of national systems is needed.

6 Taxes

6.1 Definition

Economic theory differentiates between ecological taxes (or charges) on production or consumption and taxes (or charges) on pollution. The concept of taxing emissions and internalising externalities was first suggested by Arthur C. Pigou.⁴⁶ However, the implementation of a Pigouvian tax requires a substantial amount of information in order to determine the optimal level of pollution. Therefore, today's ecological taxes are generally based on the Price-Standard-Approach (PSA). This assumes that the desired level of

⁴⁴ For a similar discussion on the trading of emission rights see Buck and Verheyen, *supra*, footnote 31.

⁴⁵ Article I: 2 (a) to (d) GATS.

the Price-Standard-Approach (PSA). This assumes that the desired level of environmental quality is determined in the political process.⁴⁷

With respect to energy policy, one can differentiate between a tax on primary energy consumption and a tax on final energy. The former is more preferable, because it creates incentives for improving energy efficiency at all levels of the energy transformation process. However, without international harmonisation, the introduction of such a tax on primary energy would be difficult to realise, because domestic final energy could be easily substituted by imported final energy.⁴⁸

In general, taxation is widely seen as a cost-effective instrument for reducing carbon dioxide emissions—some even see a potential for energy taxes to become the main pillar of fiscal systems in the 21st century.⁴⁹ Energy taxes allow for the inclusion of the long-term costs of climate change into the price system and thus balance the private costs of carbon dioxide emissions with the environmental and social costs of global warming. A number of countries, mainly in northern Europe, have already implemented energy or carbon taxes in the context of broader ecological tax reforms.

6.2 Application in Germany

In 1999, the *First Step Toward an Ecological Tax Reform Act* came into force in Germany. The *Ecological Tax Reform* (ETR) has two objectives: first, lowering energy consumption and improving energy efficiency, which could eventually lead to a reduction in greenhouse gas emissions, and second, redistributing tax revenues to the social security system, which could lead to more employment.⁵⁰

⁴⁶ A.C. Pigou: *The Economics of Welfare*, London: Macmillan, (1932).

⁴⁷ W. Baumol, M. Oates: *The Use of Standards and Prices for Environmental Protection*, Swedish Journal of Economics 73, (1971), 42-54.

⁴⁸ S. Bach, M. Kohlhaas, B. Meyer, B. Praetorius, H. Welsch: *The effects of environmental fiscal reform in Germany: a simulation study*, Energy Policy 30, (2002), 803-811, p. 804

⁴⁹ T. Barker: *Limits of the Tax Approach for Mitigating Global Warming*, in: J. Hacker, A. Pelchen (eds.): *Goals and Economic Instruments for the Achievement of Global Warming Mitigation in Europe* (= *Proceedings of the EU Advanced Study Course held in Berlin, Germany*, Dordrecht, Boston, London: Kluwer, (July 1997), 239-251, p. 239

⁵⁰ This corresponds to the concept of the “double-dividend”, see M. Kohlhaas: *The German Ecological Tax Reform*, American Institute for Contemporary German Studies, The Johns Hopkins University, Economic Studies Program Series 6, (2000). For a simulation study see Bach et al., *supra*, footnote 48.

As a first step, the German government increased the existing tax on gasoline, heating fuel, diesel fuel, and natural gas and introduced a new tax on electricity. There is, however, no environmental tax on coal which is the most carbon-intensive primary energy source. From 2000 to 2003 four more steps of the ETR followed, with yearly increases of the tax rate for gasoline and electricity. The government also allowed for compensations and reductions for some groups.⁵¹ Energy from renewable sources is exempt from the ecological tax, as long as it is either used by the producer himself or is supplied to an electricity grid that is exclusively fed by renewable sources.

6.3 Implementation Problems of Environmental Taxes

The implementation of national environmental taxes is not obstructed by any WTO rules as long as imports from WTO member countries are taxed in the same way as domestic goods. Implementation problems are rather a matter of resistance from domestic industry, which has often resulted in adjustment measures such as special exemptions or rebates for certain sectors.⁵² In many countries, the domestic opposition to the introduction of energy taxes is based on the perception that energy taxes would affect the international competitiveness of national industries.⁵³ Whether a loss in competitiveness can be empirically supported, or whether it is merely based on the perception of the potential “victims” of a tax proposal, in many cases energy taxation is seen as a major threat to domestic industries, and it has triggered strong political opposition in the past and is likely to continue to do so

⁵¹ OECD and International Energy Agency IEA: *Dealing with Climate Change. Policies and Measures in IEA Member Countries*, Paris: OECD, (2001), p. 85; BMF – Bundesministerium der Finanzen: *Achtzehnter Subventionsbericht. Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuervergünstigungen für die Jahre 1999 – 2002*, Berlin, (2001a), p. 25.

⁵² OECD: *Environmentally Related Taxes in OECD Countries. Issues and Strategies*, Paris: OECD, (2001a).

⁵³ The debate includes the scenario of firms relocating to so-called pollution havens. For an empirical analysis see A. B. Jaffe, S. R. Peterson, P. R. Portney, R. N. Stavins: *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell us?*, *Journal of Economic Literature* 33(1), (1995), 132-163.

in the future.⁵⁴ Political pressure from industry could thus become a serious danger for national climate protection strategies.⁵⁵

One option to offset these – real or perceived – competitive impacts caused by energy taxes is a properly designed and internationally agreed upon border tax adjustment (BTA) which would not undermine the environmental objective of reducing carbon dioxide emissions.⁵⁶ Although this instrument plays only a minor role in the current debate on climate policy it might be an attractive solution for the competitiveness problem mentioned above. We therefore discuss this instrument and its eligibility under WTO law in the following.⁵⁷

6.4 Border Tax Adjustment

6.4.1 Definition and Application

Border tax adjustments have traditionally been motivated by economic reasons, not by ecological problems. Theoretically, there are two concepts for where to levy a tax on traded goods. First, the *destination* principle stipulates that goods should be taxed in the country of consumption.⁵⁸ Each country is allowed to choose its own domestic tax regime,

⁵⁴ Finland provides a good example. As the first country ever to introduce a carbon tax, Finland did not grant any tax reductions or exemptions to industry until concerns about competitiveness forced the government to change its tax scheme, see G. Teir: *Environmental Energy Taxes: The Experience of Finland*, in: OECD: *Environmental Taxes, Recent Developments in China and OECD Countries*, Paris: OECD, (1999), 303-308. These concerns also accompanied the introduction of the German ETR, see e.g. C. Krebs, D. Reiche: *Der Einstieg in die Ökologische Steuerreform: Aufstieg, Restriktion und Durchsetzung eines umweltpolitischen Themas*, Frankfurt: Peter Lang, (1999).

⁵⁵ In some cases, strong opposition from industry leads to the complete failure of energy tax proposals. The US BTU tax, Australia's "Greenhouse Levy" and New Zealand's proposal for a "Low Level Carbon Charge" are examples for the impediment of climate change policy by industry, see e.g. R. Baron: *Carbon and Energy Taxes in OECD Countries*, in: J. Hacker; A. Pelchen (eds.): *Goals and Economic Instruments for the Achievement of Global Warming Mitigation in Europe: Proceedings of the EU Advanced Study Course held in Berlin, Germany*, Dordrecht: Kluwer, (July 1997), 207-229.

⁵⁶ The DISC case is an example for the harmonisation problem. US producers had claimed that the introduction of a comprehensive system of indirect taxes in the European Communities allowed their member states to make more border tax adjustments. This, so the argument of the US producers, would create a competitive disadvantage for them, since the United States had a tax system that was based on direct taxation rather than on indirect taxation. Therefore, the US DISC legislation of 1971 introduced a partial exemption for direct taxes on exported products. It followed a dispute, initiated by the European Economic Community. One finding in the DISC case was that the US legislation granted a subsidy to export and therefore contradicted GATT rules. This can be seen as a further confirmation of the ineligibility of direct taxes for border adjustment. See BISD – Basic Instruments and Selected Documents (GATT/WTO): *The DISC case*, 2 November 1976, BISD 23S/98 (1977).

⁵⁷ For a detailed discussion see also F. Biermann, R. Brohm: *Implementing the Kyoto Protocol Without the United States: The Strategic Role of Energy Tax Adjustments at the Border*, Global Governance Working Paper No 5, Potsdam, Berlin, Oldenburg, (2003).

⁵⁸ See for example J. H. Jackson: *The World Trading System: Law and Policy of International Economic Relations*, Cambridge, MA: MIT Press, (1989).

and products from all countries are still able to compete in the international market. The universal—that is, internationally harmonised—application of the destination principle thus levels out the competitive basis for all countries: exported or imported products are neither exposed to double taxation, nor do they compete on different competitive terms arising from different national tax levels. The second principle is the *origin* principle, which requires that products are taxed in the country of production. If the origin principle was internationally accepted and taxes were harmonised, border tax adjustments would not be necessary.

In the context of discussions on the harmonisation of indirect taxes in the European Economic Community⁵⁹, GATT established a Working Party on Border Tax Adjustments in 1968 which delivered a final report in 1970.⁶⁰ The GATT Working Party opted for the destination principle, defining 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)*”.⁶¹ This definition of BTA still represents the prevailing view within the WTO system.⁶²

Examples of border tax adjustments with an environmental aspect can be found in the *Superfund tax scheme* and the *Ozone Depleting Chemicals tax scheme*, both enacted in the United States. The *Superfund tax* was introduced in the United States in 1986 as a prior-stage specific tax on listed chemicals, which were used as inputs for the further production of chemical derivatives. It was challenged before a GATT panel by the European Community.⁶³

⁵⁹ K. W. Dam: *The GATT: Law and International Economic Organization*; Chicago: University of Chicago Press, (1970), p. 213.

⁶⁰ GATT Document L/3464, 2 December 1970, see *supra*, BISD 18S/97, footnote 10.

⁶¹ BISD 18S/97, *supra*, footnote 10, para. 4.

⁶² WTO-CTE: *Taxes and Charges for Environmental Purposes-Border Tax Adjustment*, Note by the Secretariat, (2 May 1997). WTO Document WT/CTE/W/47, (1997a), para. 28

⁶³ BISD - Basic Instruments and Selected Documents (GATT/WTO): *Report of the GATT Panel. United States: Taxes on Petroleum and Certain Imported Substances*, (17 June 1987), BISD 34S/136.

However, the GATT panel only examined *how* the tax was applied, and not for *which* political purpose. Since the US imposed the tax directly, it was considered to be eligible for a BTA.⁶⁴ Additionally, the Superfund Case dealt with inputs that were physically incorporated in the product, while energy is consumed during the production process. This makes the case of energy more complicated (see also below).

The US *Ozone Depleting Chemicals (ODC) Tax* was introduced to implement the Montreal Protocol on Substances that Deplete the Ozone Layer.⁶⁵ It represented a tax on the domestic consumption of certain ozone depleting chemicals, either directly or indirectly through the consumption of products which were manufactured using the ODCs. Furthermore, the *ODC tax* applied to substances used in the production process that were not physically incorporated in the final product.⁶⁶

The border tax adjustment of the *ODC tax* was quite effective in protecting the domestic ODC industry from foreign competitors, while also allowing a gradual phasing-out of ODCs in US industry. It established the importance of border tax adjustments in the context of taxes with an environmental purpose.⁶⁷ So far, no country has claimed that adjustment of taxes on ODCs when imported to the United States violates GATT or WTO regulations.⁶⁸

6.4.2 Border Tax Adjustments Under WTO Law

When investigating whether WTO law restricts the implementation of border tax adjustments on energy taxes, one needs to consider different provisions and principles of the WTO framework. WTO rules differ for imports and exports, and no regulations specifically deal with border tax adjustments.

⁶⁴ C. Pitschas: *GATT/WTO Rules for Border Tax Adjustments and the Proposed European Directive Introducing a Tax on Carbon Dioxide Emissions and Energy*, Georgia Journal of International and Comparative Law 24, (1995), 479-500, p. 492.

⁶⁵ D. Brack, M. Grubb, and C. Windram: *International Trade and Climate Change Policies*; London: Earthscan, (2000), p. 78-9.

⁶⁶ *Ibid.*, p. 12.

⁶⁷ Brack et al., *supra*, footnote 65, p. 79.

⁶⁸ This, as Hoerner remarks, is naturally not conclusive, because the tax on embodied ODCs is usually rather small compared to the price of the traded good. See A.J. Hoerner: *The Role of Border Tax Adjustments in Environmental Taxation: Theory and U.S. Experience*, Working Paper, presented at the International Work-

A number of possible systems for border tax adjustment are clearly not acceptable under WTO law. First, direct taxes—such as income taxes or social welfare charges for producers—are not eligible for adjustment under the GATT, whereas indirect taxes—that is, taxes on products—are eligible. This distinction between direct and indirect taxation, which follows from the prevailing destination principle in the WTO system, has been generally accepted as the basis for GATT/WTO provisions on border tax adjustments with respect to both imports and exports.⁶⁹ Thus, only indirect taxes are eligible for adjustment in accordance with the destination principle. This is embodied in different GATT/WTO provisions and has also been confirmed by a GATT panel in the context of the US Domestic International Sales Corporations (DISC) legislation in the 1970s.⁷⁰

Energy taxes clearly are indirect taxes. WTO law remains unclear about the eligibility of indirect taxes for adjustment. This applies particularly in the case of indirect taxes that are indirectly applied to end products. This method of taxation includes input or process related “prior-stage” taxes on physical inputs, on energy or on other parts of the production process. The 1970 Working Party on border tax adjustment could not reach a consensus on categorising “*taxes occultes*”—including taxes on advertising, energy, machinery and transport—, i.e. their eligibility for border tax adjustments could not be determined.⁷¹

Article II (2) GATT only refers to taxes applied “*directly or indirectly*” to the product, which in principle does not exclude inputs at different stages of the production process. Article II (2) (a) further states that “... *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*”. The use of the word “article” may indicate that the indirect tax is construed as being restricted to products that are physically incorporated into the final product. However, the provision does not answer the question clearly. Article VI (4) with its wording “borne by products” is as equally vague concerning exports as Article II (2).

shop on Market Based Instruments and International Trade of the Institute for Environmental Studies Amsterdam, (19 March 1998), p.12 fn 41, at: <www.sustainableeconomy.org/bta.pdf>

⁶⁹ WTO-CTE 1997a, *supra*, footnote 62, para. 31; Dam, *supra*, footnote 59; BISD 18S/97, *supra*, footnote 10, para. 8; See also P. Demaret; R. Stewardson: *Border Tax Adjustments under GATT and EC Law and General Implications for Environmental Taxes*, Journal of World Trade 28(4), (1994), 5-65. p. 16.

⁷⁰ See Biermann and Brohm, *supra*, footnote 57.

⁷¹ BISD 18S/97, *supra*, footnote 10, para. 15 a.

The interpretation of measures related to prior-stage inputs and PPMs can also be explored in related panel decisions. The panel report on the US-Superfund Case decided that taxes on “materials” that were used for the manufacture of domestic products may be taken into account when imposing border tax adjustments on imported like products. The panel did not, however, indicate whether the chemicals were physically incorporated in the final product in any recognisable way.

The 1979 SCM Code is also relevant for border tax adjustments on exports and refers in paragraph (g) of its Annex to “*the exemption or remission in respect of the production and distribution of exported products of indirect taxes*”, which is generally permitted. The remission of prior-stage cumulative taxes on goods or services used in the production of products is, as stated in paragraph (h), only permitted if the taxes are levied on goods that are physically incorporated in the exported product. It remains unclear whether energy taxes fall under the provision for prior-stage cumulative taxes. The 1994 ASCM slightly changed the impetus behind these provisions. Under Annex II ASCM it is now allowed that countries remit taxes on exports, if the taxes are prior-stage cumulative indirect taxes on inputs. Footnote 61 defines these inputs as “*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 product.*”⁷² This seems to change how the eligibility of energy taxes for border tax adjustments can be interpreted and may point to the conclusion that an indirect tax on a production input would be eligible for adjustment, if the inputs included energy, fuels or oil that were used or consumed in the production process.⁷³ However, whether footnote 61 clearly allows for BTA on energy is subject to ongoing discussions.⁷⁴

6.5 Conclusions and Policy Options

The introduction of energy taxes has faced substantial resistance from industry in many countries, frequently resulting in adjustment measures such as special exemptions or rebates for certain sectors. In general, taxes are compatible with WTO rules as long as there is no discrimination between domestic and foreign products. This section focused on border tax adjustments for energy taxes which could be used to offset potential competitive

⁷² WTO-Committee on Trade and Environment CTE: *Negotiating History of Footnote 61 of the Agreement on Subsidies and Countervailing Measures*, Note by the Secretariat, WT/CTE/W/16, (1995).

⁷³ See also Demaret and Stewardson, *supra*, footnote 69, p. 31.

disadvantages without watering down the environmental tax objectives, e.g. the reduction of carbon dioxide emissions. However, a broader discussion about the feasibility of border tax adjustments in the context of energy taxes has not yet taken place.

We found that it is not entirely clear whether border tax adjustments for energy taxes are permitted under world trade law. We can only identify the acceptability of conceivable systems for border tax adjustments in general. Direct taxes are clearly not eligible for adjustment under GATT, whereas indirect taxes are eligible. This distinction follows on from the prevailing destination principle in the WTO system and has been generally accepted as a basis for WTO provisions on border tax adjustments. The eligibility of indirect taxes for adjustment, however, remains unclear when *indirect taxes* are *indirectly* applied to end products. This is particularly relevant for energy as an input that is no longer physically present in the final product. There is only one point that could support the conclusion that energy taxes would in general be eligible for border tax adjustment: the provision in the 1994 ASCM that a country is allowed to remit taxes on exports for prior-stage cumulative indirect taxes on inputs “physically incorporated, energy, fuels and oil used in the production process”.

However, concerning the eligibility of such adjustments much will depend on actual state practice, as this is crucial in determining the interpretation of the treaties, as well as on decisions by the WTO dispute settlement mechanism. Given the importance of climate change policy for world trade and the remaining ambiguity in WTO law, it would be desirable for governments to initiate a process to reach a multilateral understanding on the permissibility of border tax adjustments for energy taxation and also for other inputs that are not physically incorporated in the final product. Further analyses and discussion is needed in order to find international agreement on how to proceed in this direction.

7 Subsidies

7.1 Definition

From the economic perspective a subsidy can be defined, in a broad sense, as an economic benefit received by a private agent from public funds at no cost or below the costs of producing the benefit. In a more narrow sense, subsidies can be understood as financial assis-

⁷⁴ Ibid., p. 29 ff; WTO-CTE (1995), *supra*, footnote 72.

tance (e.g. direct payments, tax exemptions) from the government to the private sector. All economic definitions of subsidies have one common characteristic: a benefit is conferred from the public to the private sector. Subsidies have long been used to regulate the economy as well as to promote national policies. All countries use subsidies as a policy instrument. A subsidy is not compatible with the idea of making polluters pay for environmental damage. However, if properly designed and applied, subsidies may contribute to an improvement of the environment in the long run.⁷⁵ Hence, the *political* definitions of the PPP used by the OECD (1974, Annex II) and the European Union (Article 175 (5) European Treaty) state that because of other policy goals subsidies may be temporarily permitted.⁷⁶

Additionally, the Commission allows for tax exemptions⁷⁷ in the energy sector, if such exemptions are limited in time and are necessary for the implementation of an ecological tax system within a member country.⁷⁸ Furthermore, the Commission allows state aids, which seek to support renewable energy sources and combined heat and power generation (*Kraft-Wärme-Kopplung*).⁷⁹

7.2 Application in Germany

In Germany, the consumers and producers of energy are supported through direct payments, price guarantees, and tax exemptions. The *Renewable Energies Act (Erneuerbare-Energien-Gesetz, EEG)*, which entered into force in April 2000, introduced a system of financial aid for power generation from renewable energy sources. The EEG aims at achieving a 12% share for electricity produced from renewable energy sources by 2010. The Act provides price guarantees for the producers of renewable energy, like hydrodynamic power, landfill gas, firedamp, sewage gas, biomass energy, geothermal energy, wind energy, and solar radiation energy. Grid operators are compelled by law to remunerate the producers using the prices fixed in §§ 4 to 8 EEG. The additional costs have to be borne by the grid operators and will, at least in the long run, be passed on to consumers. The Euro-

⁷⁵ See for a detailed discussion H.-J. Kim: *Subsidy, polluter pays principle and financial assistance among countries*. Journal of World Trade 34(6), 2000, 115-141.

⁷⁶ OECD, *supra*, footnote 52, p. 11; European Commission: *Community Guidelines on State Aid for Environmental Protection*, Official Journal of the European Communities No. C037; 03/02/2001; 0003-0015, (2001), p. 6.

⁷⁷ Tax exemptions are considered to be subsidies by Article 87 of the EU-Treaty.

⁷⁸ European Commission, *supra*, footnote 76, Point 23, p. 6.

⁷⁹ *Ibid.*, Point 24, p. 6.

pean Court of Justice found the EEG not to be a subsidisation in the sense of European law, since there was no involvement of the state and private and public enterprises are treated equally.⁸⁰ However, as we shall see in section 7.3 the price support mechanisms in the EEG might be relevant in the context of the WTO definition of a subsidy.

Similarly, the *Co-Generation Act (Kraft-Wärme-Kopplungsgesetz, KWKG)* is a law promoting the use of the combined production of heat and power. The KWKG stipulates guaranteed prices for electricity to be paid by the grid operators to the energy producers of heat and power. The *New Co-Generation Act*, which entered into force on 1st April 2002, protects the existing combined heat and power energy production plants.

Furthermore, the German Ecological Tax reform (ETR) includes a series of tax reductions, as pressure groups had complained about the burden and continue to do so. The German government decided to reduce this burden from the ETR for energy-intensive sectors, commuters, public transport and low-income households. Exemptions from the taxes on petroleum products, which were already in effect before the ETR entered into force, were prolonged (e.g. for transport by air and ship). As a result now mainly private households, the retail sector, the road transport sector, service companies, public institutions and small enterprises pay the full ecological tax rate. The variety of exemptions may lower the effect of structural change in favour of the less energy-intensive sectors.⁸¹ The ETR also provides funds for subsidies for energy production plants based on renewable energy sources. In 2002, these transfers amounted to 200 million Euro.⁸²

7.3 Potential Conflicts with WTO Law

In principle, the WTO law follows a “non-subsidization” approach, although there are detailed rules on the different kinds of national subsidies. These rules include Article XVI GATT and the ASCM.⁸³ Article XVI (1) GATT states that in cases of subsidisation, in-

⁸⁰ ECJ – European Court of Justice: Case C-379/98 from (13 March 2001).

⁸¹ Bach et al., *supra*, footnote 48, p. 811.

⁸² BMU – Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Ed.): *Entwicklung der Erneuerbaren Energien – aktueller Sachstand*, Umweltpolitik des BMU, Berlin, (2002), p. 15.

⁸³ The ASCM was negotiated in the framework of the Uruguay Round. It is binding for all member states. Its predecessor – the Tokyo Round Subsidies Code – was plurilateral in character and only binding for OECD members (excluding Mexico and Ireland) and 12 advanced developing countries. See A.B. Zampetti: *The Uruguay Round Agreement on Subsidies – A Forward-Looking Assessment*, Journal of World Trade 29(4), (1995), 5-29, p. 10.

cluding income or price supports, “*which operate[s] directly or indirectly to increase exports of any product form, or to reduce imports of any product into, its territory*”, the contracting parties must be notified. According to the ASCM a subsidy can either be a benefit-conferring *financial contribution* from public funds or a benefit-conferring *price or income support*.

According to the ASCM, subsidies can be classified into three categories:

- prohibited subsidies,
- actionable subsidies,
- non-actionable subsidies.

In order to facilitate the classification of subsidies, a distinction between “specific” and “non-specific” subsidies is introduced in Article 2 ASCM. Subsidies are considered *specific*, if they are formally or actually targeted at certain specific enterprises, at groups of enterprises, at industries, or at enterprises in a certain region. If a subsidy is specific, it is either prohibited or actionable. According to Article 3, prohibited subsidies are non-agricultural subsidies based, in law or in fact, on export performance, or subsidies contingent, in law or in fact, upon the use of domestic over imported goods. Actionable subsidies, as defined in Article 5 and 6, are specific subsidies which cause “*adverse effects to the interests of other Members*” either

- by injuring the domestic industry of another Member; or
- by nullifying or impairing the benefits accruing, directly or indirectly, to other Members of the GATT; or
- by seriously prejudicing the interests of another Member.

The latter case may arise if the subsidy displaces or hinders imports of like products into the member market where the subsidisation takes place (Article 6).

All other subsidies are *non-specific*. Non-specific subsidies, if duly notified, are non-actionable (Article 8). They cannot be challenged under the WTO dispute settlement mechanism and are not subject to countervailing measures. However, if a non-actionable subsidy (as defined in Article 8.2) causes “*serious adverse effects to the domestic industry*” of a member state which are “*difficult to repair*” (Article 9.1), member states are ex-

pected to negotiate a mutually satisfactory solution. If no such solution can be found, the case can be referred to the Committee on Subsidies (Article 9.3).

In general, environmental subsidies were regarded as non-actionable subsidies during the Uruguay Round.⁸⁴ Nevertheless, the exemption for environmental subsidies, which had been agreed upon and was part of the ASCM (Article 8.2(c)) until 1999, has not been renewed. The OECD interprets this as “*an indication that current environmental subsidies have little effect on international trade*”.⁸⁵ Even if environmental subsidies may fall under the category of actionable subsidies, there are possible exemptions, e.g. the application of border tax adjustments including the remission of tax on exported goods.⁸⁶

The first issue to be addressed is whether the German price guarantees for producers of renewable energy (EEG and KWK laws) have to be regarded as a subsidy at all under WTO law.⁸⁷ This would be the case, if the three criteria legally defining a subsidy are satisfied:

- 1) There must be a financial contribution by government or any form of income or price support (satisfying the conditions specified in Article 1.1(a)(1) or 1.1(a)(2) ASCM).
- 2) A benefit has to be conferred (Article 1.1(b) ASCM).
- 3) The measure must be specific (Article 2 ASCM).

ad 1) In order to qualify as a subsidy according to Article 1.1(a)(1), a financial contribution by a government is required. However, the payments to electricity producers using renewable sources are a financial contribution by the grid operators and not by the government. Thus, the EEG and the KWKG do not meet the requirement of Article 1 (a) (1) first sentence. This judgement is in line with the recent ruling of the panel on *United States -*

⁸⁴ OECD: *The Polluter-Pays Principle as it Relates to International Trade. A Preliminary Study*; COM/ENV/TD(2001)44, Paris: OECD, (2001b), p. 13.

⁸⁵ *Ibid.*, p. 14.

⁸⁶ *Ibid.*, p. 14.

⁸⁷ The European Court of Justice (ECJ) has found the EEG not to be a state aid under European law. Cp. European Court of Justice, *supra*, footnote 80. However, this does not mean that the provisions of the EEG will not be considered subsidies under WTO rules. "While the ECJ found that State aid necessarily involves a transfer of State resources, and hence in practice a charge on the public account, the WTO dispute organs took the view that subsidies always consist of financial contribution by the government, but that this financial contribution does not have to involve a charge on the public account. [...] in this respect WTO rules on subsidies trigger disciplines more easily than the EC rules on State aid." See M. Slotboom: *Subsidies in WTO Law and in EC Law - Broad and Narrow Definitions*. *Journal of World Trade* 36(3), (2002), 517-542, p. 540.

*measures treating export restraints as subsidies*⁸⁸. The report argues that "... by introducing the notion of a financial contribution, the drafters [of the ASCM] foreclosed the possibility of the treatment of *any* government action that resulted in a benefit as a subsidy."⁸⁹ McGovern comes to a similar conclusion: "The requirement of a financial contribution reflects an intention not to include in the notion of subsidy all governmental measures conferring benefits."⁹⁰

The measures of the EEG, however, might still be considered an income or price support under 1.1(a)(2) ASCM. According to McGovern the definitions of income or price supports have not received much attention. Only in 1960, a GATT panel pronounced that a loss to the government must be given, i.e. a guaranteed price paid by a government for a product would be a subsidy within the terms of Article XVI.⁹¹ Grave arrives at a similar conclusion. He argues that the contracting parties of the GATT 1947 assumed that income and price support requires the use of government resources.⁹² However, the price guarantees under the EEG and KWKG are not granted to producers by the government. Rather, the government forces two independent private actors to strike a deal at predetermined prices, if certain conditions prevail. Therefore the German approach to promote renewable energy production does not fall under the WTO definition of subsidies according to Article 1 (a)(2) ASCM.

We may therefore conclude, that the provisions in the EEG and the KWKG for supporting power generation from renewable energy sources do not meet the criteria for a subsidy as specified in Article 1.1(a)(1) or (2).

Notwithstanding such considerations Slotboom argues, that the German way of supporting renewable energy generation is very likely to fulfil the five criteria of Article 1(a)(1)(iv). He claims that

a) "the government entrusts or directs" (in the EEG and KWKG),

⁸⁸ WT/DS194/R, 2001, par. 8.65.

⁸⁹ WT/DS194/R, 2001, par. 8.38

⁹⁰ E. McGovern: *International Trade Regulation*, Exeter: Globefield Press, looseleaf, (2002), p. 11.31-3 (issue 12).

⁹¹ *Ibid.*, p. 11.34.

⁹² C. Grave: *Der Begriff der Subvention im WTO-Übereinkommen über Subventionen und Ausgleichsmaßnahmen*, Duncker & Humblot, Berlin, (2001), p. 252.

- b) "a private body" (the producers of conventional energy),
- c) "to carry out one or more of the type of functions illustrated in (i) to (iii) [of Article 1 (a)(1)]" (buying electricity at higher than the real economic value),
- d) "which would normally be vested in the government and"
- e) "the practice, in no real sense, differs from practices normally followed by governments" (promoting the use of renewable sources of energy through buying electricity for a higher than the real economic value is an activity normally vested in the government and the practice does not differ from practices normally followed by governments).⁹³

Slotboom concludes that government measures such as those applied in the EEG and KWKG "would most likely be considered potentially prohibited or actionable subsidies within the meaning of the SCM agreement."⁹⁴

With respect to Slotboom's conclusions several points are worth noting. First, it is unclear why the subsidy should be considered potentially prohibited. Even in the event that the German price guarantees for renewable energy would be found to constitute a subsidy under WTO law, it is unclear whether they would be regarded as *specific* subsidies under the ASCM (Article 1 and 2 ASCM).⁹⁵ Specific subsidies can either be prohibited or actionable. As these subsidies are neither based on export performance nor contingent upon the use of domestic over imported goods, they are not prohibited (Art. 3 ASCM). Second, subsidies would become actionable if they injured the domestic industry of another WTO Member (Art 5 ASCM). It is unlikely that the present level of international trade in renewable energy will cause such damage. Third, promoting the use of renewable energy sources through buying electricity for a higher than the economic value is an activity which is normally *not* vested in the government. Fourth and most important, there is no financial contribution from government or any public body within the territory of a member state. As we have shown above, not all government measures conferring benefits are considered a subsidy.

These arguments point to the conclusion that Slotboom's judgement should be treated with due care and that the price guarantees under the EEG and KWKG should not be considered a subsidy under WTO law.

⁹³ Slotboom, *supra*, footnote 87

⁹⁴ Slotboom, *supra*, footnote 87, p. 539-540

⁹⁵ See point 3) on specificity below.

ad 2) In order to qualify for a subsidy according to Article 1.1(b) a governmental measure requires that “a benefit is thereby conferred”. There is no definition of the term benefit in the ASCM or any other WTO agreement.⁹⁶ WTO past rulings indicate that a benefit exists when the measure by the government makes the recipient ‘better off’ than otherwise, i.e. as determined by the marketplace.⁹⁷ In the case of the EEG and KWKG a benefit is conferred to the recipient because the grid operators are required to remunerate the price fixed by law which is *higher* than the market price.

ad 3) According to Article 2.1 (a) ASCM specificity requires that the measure of the government is granted selectively in law or in fact to an enterprise or industry or group of enterprises or industries (referred to in the ASCM as “certain enterprises”)⁹⁸. Article 16.1 ASCM defines an industry as the domestic producers as a whole of the like products.⁹⁹ It seems obvious that the producers of energy from renewable sources should be considered an industry and that therefore the funding under the EEG and KWKG should be considered specific. However, Article 2.1 (b) ASCM specifies an exception to this rule relevant in this case. If the legislation, on which the granting authority bases its operations, establishes objective criteria or conditions governing the eligibility for, and the amount of, a subsidy, and if the eligibility is automatic and the criteria and conditions are strictly adhered to, specificity shall not exist according to Article 2.1 (b) ASCM. These conditions are certainly satisfied by the EEG and KWKG and render the financial support therefore non-specific. However, Article 2.1 (c) ASCM specifies an exception to this exception (or a counter-exception)¹⁰⁰ which might also be relevant in this case. “If, notwithstanding any appearance of non-specificity resulting from the application of the principles laid down in subparagraphs (a) and (b), there are reasons to believe that the subsidy may in fact be specific, other factors may be considered.” Among the factors listed in the next sentence are the predominant use by certain enterprises and the granting of disproportionately large amounts of subsidy to certain enterprises. It can be argued that this is the case for the EEG

⁹⁶ Grave, *supra*, footnote 92, p. 170.

⁹⁷ See McGovern, *supra*, footnote 90, p.11.31-5; M. Benitah: *The Law of Subsidies under the GATT/WTO System*, Dordrecht: Kluwer Law International, (2001), p. 214-218.

⁹⁸ See also M. Sánchez Rydelski: *EG und WTO Antisubventionsrecht*, Baden-Baden: Nomos Verlagsgesellschaft, (2001), p. 215-218.

⁹⁹ See also Grave, *supra*, footnote 92, p. 192.

¹⁰⁰ *Ibid.*, pp.191f.

and the KWKG. Although even private households are eligible to benefit from the financial compensation specified in the EEG, disproportionately large amounts of the financial flow may go to enterprises. Obviously this judgement depends on the definition of the term “disproportionately large amounts”. In our view, Article 2.1 ASCM leaves substantial room for interpretation when applied to the EEG and KWKG. Therefore, it is difficult to judge whether specificity prevails according to Article 2.1 ASCM.

Hence, in the case of the EEG and the KWKG only one of the three conditions necessary to establish the existence of a subsidy is satisfied, namely the conferring of a benefit. The requirement of a financial contribution is not met, and it is unclear, whether specificity prevails in this case. Therefore the price support schemes under the EEG and KWKG cannot be classified as subsidies under WTO law.

Unlike the price guarantees, the financial transfers and tax exemptions under the ETR must be considered subsidies according to Art. 1 ASCM. They are specific subsidies, as they are targeted to groups of enterprises and/or to industries. However, as they are not based on export performance or the use of domestic over imported goods, they are not prohibited. They may, however, be actionable, if they cause an adverse effect to the interests of other members as specified in Art. 5 ASCM. Whether such an adverse effect exists cannot be determined precisely. Presently, it seems unlikely that the financial transfers and tax exemptions under the ETR will harm other member states' industries.

So far, no complaints have been made by WTO members about German price guarantees and financial transfers for renewable energy or about the tax exemptions under the ETR. It seems unlikely that this will happen in the near future because trade in electricity from renewable sources has to date only a small share in overall German electricity production. Moreover, the support provided by the EEG, KWKG and ETR is not directed at exports or imports, but at the production methods used by domestic firms. Potential conflicts could arise, if electricity imports of renewable origin put competitive pressure on the German market for electricity from renewable sources and on grid operators, or, if an over-capacity existed, which would lead to electricity exportation. In the latter case, the financial transfers could constitute an actionable subsidy according to Art. 5 ASCM. However, it is likely that trade in "green" electricity in the near future will take place within the EU or between the EU and accession countries and therefore the appropriate level for the clarification of these conflicts would be the European Union and not the WTO.

7.4 Conclusions and Policy Options

As we have shown the German price guarantees for electricity from renewable energy in the EEG and in the KWKG cannot be considered as subsidies under WTO law, as there is no financial contribution from the government involved. Even in the unlikely event that they would be considered a subsidy, they would be regarded as non-actionable, unless a WTO member could prove serious adverse effects to the domestic industry which are difficult to repair. Hence, the current national support for renewable energy production is unlikely to cause trade conflicts at the WTO level in the near future. These findings suggest that there is no need to change this national energy policy approach because of current WTO rules.

Furthermore, it is also unlikely that the tax exemptions under the ETR will be challenged in a WTO dispute in the near future. This kind of subsidies were considered to be non-actionable up until 1999. However, a dispute could arise in the future, if tax exemptions under the ETR increase and a WTO member feels they injure its domestic industry. This could, for instance, become relevant if policy makers gave in to the pressure of interest groups and decided higher tax exemptions for energy-intensive industries under the ETR. In order to avoid a conflict with WTO law the best policy option is not to allow any specific subsidies, i.e. not to grant certain industries lower tax rates or exemptions from taxes under the ETR or at least to reduce them substantially.

8 Conclusions

This paper analyses the relationship between German energy policy instruments and WTO rules with particular emphasis on the German climate change policy. Our main finding is that in general, current German energy laws, which aim at reducing greenhouse gases, are compatible with international trade law. In particular, for the policy instruments that are used or are under consideration, we found that, first, current standards do not discriminate against foreign suppliers. However, they could be in conflict with WTO law if enforcement of non-product-related standards vis-à-vis foreign suppliers were introduced. Second, labelling of electricity from renewable resources can be set up in different ways. Mandatory labels are subject to WTO rules and must not be used as a protectionist tool; voluntary labels are not subject to WTO rules, but could become a subject of trade conflict if the technology of electricity generation were regarded as a characteristic of the traded electricity.

In any case, it can be expected that future information requirements about production methods in the energy sector will lead to a differentiation of electricity based on its origin. Whether such discrimination of a homogeneous product is compatible with the concept of "like products" under WTO law remains a disputed issue and its relevance will increase with cross-border trade in electricity. Third, the design of trading systems for green certificates should consider basic WTO principles if the first attempts made by European countries to set output quotas for energy suppliers become a popular policy tool internationally. Fourth, our discussion of the scope for border tax adjustments for energy taxes shows that under current WTO law, the eligibility for this measure is not clearly defined. And finally, we find that the German price guarantees for producers of energy from renewable sources should not be considered as subsidies under WTO law.

National policy aiming at international environmental protection can always be allowed as an exception under Article XX (b) or (g) GATT if complying with the prerequisites stipulated. However, instead of claiming these exceptions for unilateral policy measures, countries should proceed in finding solutions for the global climate change problem in multilateral agreements. Although the Kyoto Protocol does not address any trade obligations so far, this could be the case for future MEA dealing with energy-related non-product-related PPMs. Compatibility with international trade rules is important, but the WTO should not serve as the institution dominating legal limits of environmental policy measures. Rather, constant interaction and co-operation between these policy areas is necessary in order to first, take into account specific issues from multilateral environmental agreements within WTO rules, and second, design international environmental policy in accordance with international trade principles. German initiatives for co-ordinating the political initiatives to increase the use of renewable energy sources can be regarded as a first attempt.

Bibliography

- Altemöller, F. (1998): *Handel und Umwelt im Recht der Welthandelsorganisation WTO. Umweltrelevante Streitfälle in der Spruchpraxis zu Artikel III und Artikel XX GATT*, Frankfurt am Main.
- Althammer, W.; Biermann, F.; Dröge, S.; Kohlhaas, M. (2001): *Handelsliberalisierung kontra Umweltschutz? Ansätze für eine Stärkung umweltpolitischer Ziele in der Welthandelsordnung*, Berlin: Analytica.
- Althammer, W.; Dröge, S. (2003): *International Trade and the Environment: the Real Conflicts*; In: Rauscher, M. et al. (Eds.): *Environmental Policy in an International Perspective*. Kluwer, Dordrecht.
- Anderson, M. S.; Sprenger, R. U. (Eds.) (2000): *Market-based Instruments for Environmental Management*. Cheltenham: Edward Elgar.
- Bach, S.; Bork, C.; Ehrenheim, V.; Kohlhaas, M.; Lutz, C.; Meyer, B.; Praetorius, B.; Schumacher, K.; Welsch, H. (2001): *Die ökologische Steuerreform in Deutschland Eine modellgestützte Analyse ihrer Wirkungen auf Wirtschaft und Umwelt*. German Institute for Economic Research (DIW).
- Bach, S.; Kohlhaas, M.; Meyer, B.; Praetorius, B.; Welsch, H. (2002): *The effects of environmental fiscal reform in Germany: a simulation study*. *Energy Policy* 30 (2002), 803-811
- Barker, T. (1997): *Limits of the Tax Approach for Mitigating Global Warming*. In: *Goals and Economic Instruments for the Achievement of Global Warming Mitigation in Europe* (= Proceedings of the EU Advanced Study Course held in Berlin, Germany, July 1997), edited by Jürgen Hacker and Arthur Pelchen, 239-251. Dordrecht, Boston, London: Kluwer.
- Baumol, W.; Oates, M. (1971): *The Use of Standards and Prices for Environmental Protection*, *Swedish Journal of Economics* 73, p. 42-54.
- Baron, R. (1997): *Carbon and Energy Taxes in OECD Countries*, In: Jürgen Hacker, Arthur Pelchen (Eds.). *Goals and Economic Instruments for the Achievement of Global Warming Mitigation in Europe: Proceedings of the EU Advanced Study Course held in Berlin, Germany, July 1997*, Dordrecht: Kluwer, 207-229.
- Benitah, M. (2001): *The Law of Subsidies under the GATT/WTO System*, Dordrecht: Kluwer Law International.
- Biermann, F. (2000): *Mehrseitige Umweltübereinkommen im GATT/WTO-Recht*. *Archiv des Völkerrechts* 38(4), 455-504.
- Biermann, F. (2001): *The rising tide of green unilateralism in world trade law: Options for reconciling the emerging North-South conflict*. *Journal of World Trade* 35(3), (June), 421-448.
- Biermann, F.; Brohm, R. (2003): *Implementing the Kyoto Protocol Without the United States: The Strategic Role of Energy Tax Adjustments at the Border*. *Global Governance Working Paper No 5*. Potsdam, Berlin, Oldenburg

- BISD - Basic Instruments and Selected Documents (GATT) (1987): *Decisions, Reports, etc.* Geneva.
- BISD - Basic Instruments and Selected Documents (GATT/WTO) (1997): *Decisions, Reports, etc. of the 16th and 17th Sessions. Review Pursuant to Article XVI:5.* Geneva.
- BMF – Bundesministerium der Finanzen (2001a): *Achtzehnter Subventionsbericht. Bericht der Bundesregierung über die Entwicklung der Finanzhilfen des Bundes und der Steuerergünstigungen für die Jahre 1999 – 2002.* Berlin
- BMF – Bundesministerium der Finanzen (2001b): Monatsbericht des BMF, Oktober 2001. Berlin.
- BMU – Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit (Ed.) (2002): *Entwicklung der Erneuerbaren Energien – aktueller Sachstand.* Umweltpolitik des BMU. Berlin.
- Botchway, F. N. (2001): *International trade regime and energy trade.* Syracuse Journal of International Law and Commerce 28(1), 1-17.
- Brack, D.; Grubb, M.; Windram, C. (2000): *International Trade and Climate Change Policies.* London: Earthscan.
- Buck, M.; Verheyen, R. (2001): *International Trade Law and Climate Change – A Positive Way Forward.* FES-Analyse Ökologische Marktwirtschaft, Juli 2001
- Chang, S. W. (1997): *GATTing a Green Trade Barrier Eco-Labeling and the WTO Agreement on Technical Barriers to Trade.* Journal of World Trade 31(1), 137-159.
- Charnovitz, S. (2002): *The Law of Environmental “PPMs” in the WTO: Debunking the Myth of Illegality.* The Yale Journal of International Law 27(59), 59-110
- Cone, S. (1999): *The Appellate Body, the Protection of Sea Turtles and the Technique of ›Completing the Analysis‹.* Journal of World Trade 33(1), 51-61.
- Dam, K. W. (1970): *The GATT: Law and International Economic Organization.* Chicago: University of Chicago Press.
- Demaret, P.; Stewardson, R. (1994): *Border Tax Adjustments under GATT and EC Law and General Implications for Environmental Taxes.* Journal of World Trade 28(4), 5-65.
- Diem, A. (1996): *Freihandel und Umweltschutz in GATT und WTO.* Baden-Baden.
- Dröge, S. (2001): *Ecological Labelling and the World Trade Organization.* Aussenwirtschaft, 56(1), 99-122.
- The Economist, *Environmental enemy No. 1*, July 6th 2002
- EEA – European Energy Association (2000): *Environmental Taxes: Recent Developments in Tools for Integration* (=Environmental Issues Series No.18). Copenhagen: EEA.
- European Commission (2000): *Green Paper on greenhouse gas emissions trading within the European Union.* COM(2000)87.
- European Commission (2001): *Community guidelines on state aid for environmental protection.* Official Journal of the European Communities No. C037, 03/02/2001, 0003-0015.
- European Council (2002): *Proposal for a Directive of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within*

the Community and amending Council Directive 96/61/EC, Working Document ENV/02/8.

ECJ – European Court of Justice (2001): Case C-379/98 from March 13, 2001.

Ewringmann, D.; Thöne, M. (2002): *Die Europäische Beihilfenaufsicht im Umweltschutz. Darstellung und Kritik des neuen Gemeinschaftsrahmens*. Umweltbundesamt (Ed.).

Faure, M. G. (1998): *Environmental Regulation*. Maastricht University, Chap. 2300, 443-520.

Farber, D. A.; Hudec, R. E. (1996): *GATT Legal Restraints on Domestic Environmental Regulations*. In: Bhagwati, J.; Hudec, R.E. (Eds.): *Fair Trade and Harmonization. Prerequisites for Free Trade?* Vol. 2, Legal Analysis, Edited by Cambridge, London, 1996, 59-95.

Fudenberg, D.; Tirole, J. (1991): *Game Theory*. MIT Press, Cambridge Mass.

GATT refers to GATT (1994).

GATT (1947): *General Agreement on Tariffs and Trade 1947*, (30.10.1947), Version 1.3.1969.

GATT (1994): *General Agreement on Tariffs and Trade. Annex 1A to the Final Act Embodying the Results of the Uruguay Round. Marrakesh, 15 April 1994* (includes GATT (1947) as well as amendments, side agreements and one protocol). Geneva.

GATT Tuna Panel (1991): *United States – Restrictions on Imports of Tuna*. Report of the Panel, 30 ILM 1594 (1991).

GATT-Tuna Panel (1994): *United States – Restrictions on Imports of Tuna*. Report of the Panel, 33 ILM 839 (1994).

Grave, C. (2001): *Der Begriff der Subvention im WTO-Übereinkommen über Subventionen und Ausgleichsmaßnahmen*. Duncker & Humblot, Berlin.

Gunst, A.J.; Wälde, T.W. (2002): *International Energy Trade and Access to Energy Networks*. *Journal of World Trade* 36(2), 191-218

Heister, J. (1997): *Der internationale CO₂-Vertrag. Strategien zur Stabilisierung multilateraler Kooperation zwischen souveränen Staaten*. Tübingen.

Helm, C. (1995): *Sind Freihandel und Umweltschutz vereinbar?*, Berlin.

Hoerner, A. J.; Muller, F. (1997): *Compatibility of Offsets with International Trade Rules*. In: Elke Staehelin-Witt and Hansjörg Blöchliger (Eds.). *Ökologisch orientierte Steuerreformen. Die fiskal- und aussenwirtschaftlichspolitischen Aspekte*. Bern, Stuttgart, Wien: Haupt, 235-253.

Hoerner, Andrew J. (1998): *The Role of Border Tax Adjustments in Environmental Taxation: Theory and U.S. Experience*. Working Paper, presented at the International Workshop on Market Based Instruments and International Trade of the Institute for Environmental Studies Amsterdam, 19 March 1998. Available at: www.sustainableeconomy.org/bta.pdf.

Howse, R. (1998): *The Turtles Panel: Another Environmental Disaster in Geneva*. *Journal of World Trade* 32(1), 73-100.

- Howse, R.; Tuerk, E. (2001): *The WTO Impact on Internal Regulations - A Case Study of the Canada-EC Asbestos Dispute*. In: De Búrca, G.; Scott, J. (2001): *The EU and the WTO: Legal and Constitutional Issues*. Oxford. 283-328
- IPCC – International Panel on Climate Change (2001): *Third Assessment Report – Climate Change 2001*.
- Jackson, J. H. (1989): *The World Trading System: Law and Policy of International Economic Relations*. Cambridge, Mass.: MIT Press.
- Jaffe, A. B.; Peterson, S. R.; Portney, P. R.; Stavins, R. N. (1995): *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell us?*, *Journal of Economic Literature* 33(1), 132-163.
- Jones, K. (1998): *Trade Policy and the Environment: The Search for an Institutional Framework*. *Aussenwirtschaft* 53, 409-434.
- Kim, H.-J. (2000): *Subsidy, polluter pays principle and financial assistance among countries*. *Journal of World Trade* 34(6), 115-141.
- Knorr, A. (1997): *Umweltschutz, nachhaltige Entwicklung und Freihandel: WTO und NAFTA im Vergleich*. Stuttgart.
- Kohlhaas, M. (2000): *The German Ecological Tax Reform*. American Institute for Contemporary German Studies, The Johns Hopkins University; Economic Studies Program Series, Vol. 6.
- Krebs, C.; Reiche, D. (1999): *Der Einstieg in die Ökologische Steuerreform: Aufstieg, Restriktion und Durchsetzung eines umweltpolitischen Themas*. Frankfurt: Peter Lang.
- Krumm, R. (1996): *Internationale Umweltpolitik: Eine Analyse aus umweltökonomischer Sicht*. Berlin
- Kulesa, M. E.; Schwaab, J. A. (1999): *Implikationen der Globalisierung für die Umweltpolitik*. Beiträge zur Wirtschaftsforschung, Nr. 60, Johannes Gutenberg Universität Mainz.
- Mankiw, G. (1998): *Principles of Economics*. Dryden Press, Fort Worth.
- McGovern, E. (2002): *International Trade Regulation*. Exeter: Globefield Press, looseleaf, issue 13.
- Michaelowa, A. (1997): *Trade and Labelling of Timber and Timber Products*. *Aussenwirtschaft* 52(4), 561-581.
- Mullett, G. (1997): *ISO 14000: Harmonizing Environmental Standards and Certification Procedures Worldwide*. *Minnesota Journal of Global Trade* 6, 379-400.
- Nordström, H.; Vaughan, S. (1999): *Trade and Environment*. WTO-Secretariat Special Studies 4, Geneva
- OECD (1997): *Eco-Labeling: Actual Effects of Selected Programmes*. OECD/GD(97)105, Paris: OECD.
- OECD (2001b): *The Polluter-Pays Principle as it relates to International Trade. A Preliminary Study*; COM/ENV/TD(2001)44, Paris: OECD
- OECD and International Energy Agency IEA (2001): *Dealing with Climate Change. Policies and measures in IEA Member Countries*. Paris: OECD

- Öko-Mitteilungen (1999): *Informationen aus dem Institut für angewandte Ökologie e.V.*, No. 3+4.
- Pigou, A. C. (1932): *The Economics of Welfare*. 4th edition, Macmillan, London
- Pitschas, C. (1995): *GATT/WTO Rules for Border Tax Adjustments and the Proposed European Directive Introducing a Tax on Carbon Dioxide Emissions and Energy*. Georgia Journal of International and Comparative Law 24 (1995), 479-500.
- Rege, V. (1994): *GATT Law and Environment-Related Issues Affecting the Trade of Developing Countries*. Journal of World Trade 23(1), 95-169.
- Sánchez Rydelski, M. (2001): *EG und WTO Antisubventionsrecht*, Baden-Baden: Nomos Verlagsgesellschaft.
- Sandhövel, A. (1998): *Strategien für ein Miteinander von Umweltordnung und Welthandelsordnung*. Zeitschrift für angewandte Umweltforschung 11, 496-508.
- Schlagenhof, M. (1995): *Trade Measures Based on Environmental Processes and Production Methods*. Journal of World Trade 29(6), 123-155.
- Shaw, S.; Schwartz, R. (2002): *Trade and Environment in the WTO. State of Play*. Journal of World Trade 36(1), 129-154.
- Slotboom, M (2002): *Subsidies in WTO Law and in EC Law - Broad and Narrow Definitions*. Journal of World Trade 36(3), 517-542.
- Sturm, A.; Wackernagel M.; Müller, K. (2000): *The Winners and Losers in Global Competition. Why Eco-Efficiency Reinforces Competitiveness: A Study of 44 Nations*. Chur, Zürich: Rüegger.
- Sucharipa-Behrmann, L. (1994): *Eco-Labeling Approaches for Tropical Timber: The Austrian Experience*. In: OECD (Ed.), *Life-Cycle Management and Trade*, 1994, Paris, 55-58.
- TBT Agreement (1994): *Agreement on Technical Barriers to Trade, Annex 1A to the Final Act Embodying the Results of the Uruguay Round*. Marrakesh, 15 April 1994
- Teir, G. (1999): *Environmental Energy Taxes: The Experience of Finland*; OECD, *Environmental Taxes. Recent Developments in China and OECD Countries*. Paris: OECD, 303-308.
- Tews, K.; Busch, P.-O. (2002): *Global Governance by Diffusion? Potentials and Restrictions for Environmental Policy Diffusion*. In: Biermann, F.; Brohm, R.; Dingwerth, K. (Eds.) *Proceedings of the 2001 Berlin Conference on the Human Dimensions of Global Environmental Change*. Potsdam: Potsdam Institute for Climate Impact Research.
- Tietje, C. (1995): *Voluntary Eco-Labeling Programmes and Questions of State Responsibility in the WTO/GATT Legal System*. Journal of World Trade 29(1), 123-157.
- UNCTAD (1994): *Eco-labelling and Market Opportunities for Environmentally Friendly Products*. Report of the UNCTAD secretariat (TD/B/WG.6/2), Geneva.
- UNCTAD (1995): *Trade, Environment and Development, Aspects of Establishing and Operating Eco-Labeling Programmes*. Report of the UNCTAD secretariat (TD/B/WG.6/5), Geneva.

- Westin, R. A. (1997): *Environmental Tax Initiatives and Multilateral Trade Agreements : Dangerous Collisions*. The Hague, London, Boston, 1997
- Wicke, L. (1993): *Umweltökonomie: Eine praxisorientierte Einführung*. 4th Edition, Munich.
- Wofford, C. (2000): *A greener future at the WTO: The Refinement of WTO Jurisprudence on Environmental Exceptions to GATT*. Harvard Environmental Law Review 24, 563-592.
- World Trade Institute (2001): Appellate Body Report. European Communities – Measures Affecting Asbestos and Asbestos-Containing Products. WorldTradeLaw.net Dispute Settlement Commentary (DSC). <http://worldtradelaw.net>.
- WTO-Alcoholic Beverages Panel (1996): *Report of the Panel, Japan - Taxes on Alcoholic Beverages* (WT/DS8/R, WT/DS10/R, WT/DS11/R, 11 July 1996).
- WTO-Appellate Body (1998): *EU Measures Concerning Meat and Meat Products (Hormones)*. Report of the Appellate Body AB-1997-4 (WT/DS26/AB/R, WT/DS48/AB/R, 16 January 1998).
- WTO-Appellate Body (1998a): *United States - Import Prohibition of Certain Shrimp and Shrimp Products*. Report of the Appellate Body AB-1998-4 (WT/DS58/AB/R from 12 October 1998, 38 ILM 118 (1999)).
- WTO-Appellate Body (2001): *EC – Measures Affecting Asbestos and Asbestos Containing Products* (WT/DS135/AB/R, 12 March 2001).
- WTO-Committee on Trade and Environment CTE (1995): *Negotiating History of Footnote 61 of the Agreement on Subsidies and Countervailing Measures*. Note by the Secretariat, (WT/CTE/W/16).
- WTO-CTE (1997), Bulletin No. 18, (PRESS/TE/018).
- WTO-CTE (1997a): *Taxes and Charges for Environmental Purposes-Border Tax Adjustment*. Note by the Secretariat, (WT/CTE/W/47, 2 May 1997).
- WTO-CTE (2000): *Information Relevant to the Consideration of the Market Access Effects of Eco-Labeling Schemes*. Note by the Secretariat; (WT/CTE/W/150, 29 June 2000).
- WTO (1998): *GATT/WTO Dispute Settlement Practice Relating to Article XX, Paragraphs (b), (d) and (g) of GATT*. Note by the Secretariat, (WT/CTE/W/53/Rev. 1, 26 October 1998).
- Zampetti, A.B. (1995): *The Uruguay Round Agreement on Subsidies – A Forward-Looking Assessment*. Journal of World Trade 29(4), 5-29.
- Ziesing, H.-J. (2002): *Major Challenges to International Climate Protection Policy*. Economic Bulletin 9/2002, <http://www.diw.de/english/publikationen/bulletin/docs/eb02/n02_09sep_1.html>