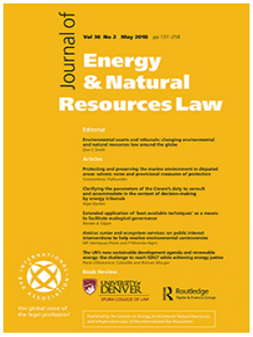

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Extended application of 'best available techniques' as a means to facilitate ecological governance

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Extended application of 'best available techniques' as a means to facilitate ecological governance

Assessing the legality of an ecologically oriented interpretation in the European Union of 'best available techniques' under international trade law and in particular in relation to energy production

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This article examines the possibility of using the concept of 'best available techniques' (BAT) to implement ecological governance in European Union energy law. Since extending the mandatory use of BAT in energy production would lead to increased implementation of rules on 'processes and production methods' (or process measures), this article primarily assesses the legality of such measures under international trade law. In this, the focus is on the implications for energy production. It appears that process measures are not categorically prohibited and that, thus, extension of the BAT concept is possible in principle. This would allow for a more holistic approach to energy production, rather than maintaining the current rigid, artificial distinction between products and processes. This new, integrated approach would enhance the level of ecological governance, which, in turn, can contribute to mitigating climate change.

Keywords: best available techniques (BAT); ecological governance; energy; sustainability; trade law; extraterritoriality; processes and production methods (PPMs); World Trade Organization (WTO); European Union (EU); Energy Charter Treaty (ECT)

1. Introduction

1.1. *Ecological governance*

The international community has acknowledged that current efforts are insufficient to stop climate change.[1] In fact, global emissions continue to rise and trajectories show that full implementation of all current pledges made at the Paris Climate Accords will still lead to a 3°C temperature rise, rather than the envisioned 1.5°C.[2] Partially,

1 'Paris Agreement under the United Nations Framework Convention on Climate Change' Decision 1/CP.21 of 12 December 2015 (Paris Climate Treaty). Recent political developments in the United States will not be taken into consideration in this article.

2 United Nations, 'IPCC: Greenhouse Gas Emissions Accelerate Despite Reduction Efforts – Many Pathways to Substantial Emissions Reductions Are Available' (April 2014) www.un.org/climatechange/blog/2014/04/ipcc-greenhouse-gas-emissions-accelerate-despite-reduction-efforts-many-pathways-to-substantial-emissions-reductions-are-available accessed 22 May 2017; International Energy Agency (IEA), *World Energy Outlook 2015* (IEA 2015); IEA, *Energy and Climate Change: World Energy Outlook Special Report* (IEA 2015); United Nations Environment Programme (UNEP), *The Emissions Gap Report 2016: A UNEP Synthesis Report* (UNEP November 2016) xvii

the ineffectiveness of climate policies is due to the fact that current legal structures are inadequate for addressing the root cause of climate change: human-induced greenhouse gas (GHG) emissions.[3] The current climate mitigation approach hinges on (i) a balancing of economic, societal and environmental elements and (ii) the belief in the human capacity to accurately predict the impacts and effects of both our actions and climate change itself. The former denies the physical reality of humankind's dependence on the natural world, whereas the latter overestimates human capabilities and comprehension.[4] An alternative approach should therefore be taken and a blueprint for this is offered by Olivia Woolley, who advocates a system of ecological governance.[5] This entails a systemic (legal) approach that acknowledges the complexities of ecosystems and their myriad interactions and interdependencies, as well as humankind's dependence on these ecosystems and our incapability to accurately and comprehensively predict the impacts and effects of our activities on these ecosystems.[6]

Essentially, an ecological legal approach should acknowledge and account for the impacts and emissions occurring throughout a product's full life cycle and to subsequently opt for the least harmful practices in order to reduce stresses on ecosystems.[7] Part of reducing the impact of production processes would be to phase out the most polluting practices.[8] This could be done by setting a threshold for activities that amount to 'ecocide' and should therefore be prohibited.[9] Less drastic is opting for the least harmful possibility, which is, in essence, quite similar to the mandatory use of 'best available techniques' (BAT) that is already commonplace in industrial production processes within the European Union.[10] In summary, the EU defines BAT as those techniques that are

http://capacity4dev.ec.europa.eu/unep/document/emissions-gap-report-2016-unep-synthesis-report accessed 22 May 2017.

3 Because of the significance of these anthropogenic contributions, this era is sometimes referred to as the 'Anthropocene'. What this notion implies for law and governance structures is explored in Louis J Kotzé, 'Rethinking Global Environmental Law and Governance in the Anthropocene' (2014) 32 Journal of Energy & Natural Resources Law 121; and at greater length in Victor Galaz, *Global Environmental Governance, Technology and Politics: The Anthropocene Gap* (Edward Elgar 2014).

4 As also asserted in Jaap C Hanekamp and Lucas Bergkamp, 'The "Best Available Science" and the Paris Agreement on Climate Change' (2016) 7 Eur J Risk Reg 42, 43.

5 Olivia Woolley, *Ecological Governance: Reappraising Law's Role in Protecting Ecosystem Functionality* (CUP 2014).

6 Similarly, Kotzé argues that the regulatory response to the challenges posed by the Anthropocene should be holistic, as well as adaptive (Kotzé (n 3) 147 and 149).

7 This is obviously not an easy task in practice, especially since the concept of 'ecosystem approach' itself is elusive and at times contested. Vito De Lucia, 'Competing Narratives and Complex Genealogies: The Ecosystem Approach in International Environmental Law' (2015) 27 Journal of Environmental Law 91, 97.

8 More elaborately, see Woolley (n 5) 74–76.

9 As advocated by Polly Higgins, *Eradicating Ecocide: Laws and Governance to Stop the Destruction of the Planet* (Shepheard-Walwyn 2010).

10 As required by Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) [2010] OJ L334/17 (Industrial Emissions Directive, IED). Additionally, the BAT concept is apt to enhance the role of information and institutional learning, which are, according to Woolley (n 5), central elements in ecological governance. On this, see also: Maria Lee, *EU Environmental Law, Governance and Decision-making* (Hart 2014) ch 5.

> the most effective and advanced… for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole….[11]

However, the use of BAT is only mandatory for gate-to-gate production (ie, confined to individual industrial facilities), and not throughout the full life cycle of a product. Extending the application of BAT beyond its original scope essentially means regulating 'processes and production methods' (PPMs) at greater length. Extending the use of BAT has two elements. On the one hand, it entails expanding the material norm, that is, implementing a more ecological, holistic interpretation of what is 'best' and, on the other hand, there is the more procedural element of applying BAT requirements throughout full production chains, regardless of where these take place.[12] This way, the use of BAT provides a legal instrument that can facilitate the far-reaching technological changes required to tackle climate change.[13]

1.2. *Aims and outline*

This article argues that internalising the external effects of production by considering them to be an integral part of the product is, in fact, essential to implement ecological governance.[14] However, the use of such process measures is controversial. This article will analyse to what extent international (trade) law allows for process measures and whether any elements of the desired life-cycle approach are perhaps already present. Special attention will be paid to energy production for two reasons. First, because EU law makes an explicit process-based distinction between electricity produced from renewable sources and electricity from fossil fuels. Such 'green' electricity is then awarded priority access to the networks.[15] Biofuels are also treated differently on the basis of their production process. At first sight, this seems to contradict the legal requirement that identical products must be accorded similar treatment. Analysing the (legal) basis for this differentiation can thus provide guidance on how such differentiation might be applied in a broader sense. Secondly, since energy production and use account for two-thirds of the world's GHG emissions,[16] applying the new BAT

11 Full definition in: IED (n 10) Art 3(10). Which technologies are BAT is not described in the Directive itself, but in separate, lengthy documents, called BAT Reference Documents (BREFs, see also section 4 of this article). For more information and all the existing BREFs, see http://eippcb.jrc.ec.europa.eu accessed 22 May 2017.

12 How ecological governance may thus be implemented is explored in Renske A Giljam, 'Better BAT to Bolster Ecosystem Resilience: Operationalizing Ecological Governance through the Concept of Best Available Techniques' (2017) 26(1) Review of European Community and International Environmental Law (RECIEL) 5. As the current article builds upon this previous one, the focus will be on EU regulations and therefore the (extended) use of BAT in the US will not be addressed.

13 See also Lea Nicita, 'Shifting the Boundary: The Role of Innovation' in Valentina Bosetti and others (eds), *Climate Change Mitigation, Technological Innovation and Adaptation: A New Perspective on Climate Policy* (Edward Elgar 2014) 32.

14 In order to implement ecological governance to the full extent, a mix of complementary measures and instruments will be necessary. The use of BAT is only one of these. See also Michael Mehling, 'Implementing Climate Governance: Instrument Choice and Interaction' in Erkki Hollo, Kati Kulovesi and Michael Mehling (eds), *Climate Change and the Law*, Ius Gentium – Comparative Perspectives on Law and Justice vol 21 (Springer 2013) 26–27.

15 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources… as amended by Directive (EU) 2015/1513 [2015] OJ L239/1 (Renewable Energy Directive, RED) Art 16.

16 IEA, *Special Report* (n 2) 11.

concept to energy production can make a major contribution to mitigating climate change. Ultimately, gaining expertise on a more comprehensive use of BAT may contribute to the development of more comprehensive holistic laws that are necessary to implement ecological governance so as to reduce overall stresses on ecosystems.

This article will first sketch the general debate on process measures (section 2) and then address their legality under international trade law (section 3). This legal analysis considers the framework of the World Trade Organization (WTO), the Energy Charter Treaty (ECT) and EU law. In this analysis, the focus will be on the legality of production standards, in the form of BAT, that lead to import restrictions of goods that were produced using particular damaging and/or polluting production methods. Such standards are controversial, because they constitute product requirements unrelated to the physical composition of the product and nevertheless (indirectly) affect production processes outside the territory of the regulating state.[17] In this sense, BAT can be regarded as a specific application of a carbon intensity standard, which may lead to an import ban of a specific product if this standard is not met.[18] The legal analysis in this article is confined (i) to BAT standards that were agreed upon at EU level and (ii) to goods that are consumed within the EU, but produced abroad. This article therefore focuses solely on import prohibitions of products that were produced in a manner inconsistent with EU standards. Primarily, this article revolves around questions on the (im)possibilities for the EU to address (environmental) harm from industrial processes occurring abroad. Section 4 will then focus on energy products and assess what the basis is of the differentiation applied to electricity and to biofuels. Also, it will analyse how a broader BAT concept can be implemented in the energy sector and whether and how it might be applied to energy production within the EU, as well as energy imports. In this, the focus will be on the conversion process of primary to secondary energy.

2. The debate on process measures

The terminology used in the debate on PPMs is diffuse. While most authors speak of PPMs, others refer to process measures, or make more detailed subdivisions, most commonly between 'product related' (pr) PPMs and 'non-product related' (npr) PPMs.[19] PPMs are often used to correct market failures.[20] In the case of mandatory BAT the objective is to reduce externalities stemming from pollution or emissions. Throughout

17 Laurens Ankersmit, *Green Trade and Fair Trade in and with the EU: Process-based Measures within the EU Legal Order* (CUP forthcoming 2017) (Ankersmit, *Green Trade*) 2–40. This book is based on Laurens J Ankersmit, 'Globalization and the Internal Market: Process-based Measures within the EU Legal Order' (PhD law thesis, VU Amsterdam 2015) (Ankersmit, 'Globalization').

18 See also Kateryna Holzer, *Carbon-related Border Adjustment and WTO Law* (Edward Elgar 2014) 29.

19 The former leave traces or residues in the final product, whereas the latter do not. For elaborations, see: Christiane R Conrad, *Processes and Production Methods (PPMs) in WTO Law: Interfacing Trade and Social Goals* (CUP 2011); Steve Charnovitz, 'The Law of Environmental "PPMs" in the WTO: Debunking the Myth of Illegality' (2002) 27 Yale Journal of International Law 59; Ankersmit, *Green Trade* (n 17) 2–40; Mitsuo Matsushita and others, *The World Trade Organization: Law, Practice, and Policy* (OUP 2015) 443; Erich Vranes, *Trade and the Environment: Fundamental Issues in International Law, WTO Law, and Legal Theory* (OUP 2009) 321–30; Donald H Regan, 'How to Think about PPMs (and Climate Change)' in Thomas Cottier, Olga Nartova and Sadeq Z Bigdeli (eds), *International Trade Regulation and the Mitigation of Climate Change* (CUP 2009) 102.

20 Holzer (n 18) 92.

this article, the terms process measure and PPM are used interchangeably and are understood to mean measures that target how a product is produced, rather than regulating its physical traits or contents. Thus, this article will confine itself primarily to the (il)legality of npr-PPMs in international trade law.

Irrespective of the terminology used, the debate on process measures essentially revolves around two issues. First of all, it relates to the (limits of) sovereignty of nation states, and, secondly, it revolves around the question: what constitutes a product. To start with the former, the main disagreement in the debate is whether process measures infringe upon the principles of non-interference in the internal affairs of another state and sovereignty of nation states in the international community, as well as on the principles of non-discrimination and elimination of obstacles in international trade. The fact is that process measures may lead to the *de facto* imposition of specific standards regarding production processes on producers that reside outside the territory of the regulating state(s). Thus, process measures can have significant extraterritorial effects.[21] There is a clear tension between, on the one hand, the right of one country (or a trade block such as the EU) to set standards for the products imported or consumed within its territory and, on the other hand, the sovereignty of the producing country to set its own standards. This makes process measures highly controversial.[22]

The second central issue in the debate on process measures can be referred to as the 'traces debate'. This primarily revolves around the question whether or not the use of different production processes causes products to be (fundamentally) different or whether they only differ if traces of the production processes are residual in the product itself. The answer to this question is essential to subsequently determine whether it is allowed for another state to prohibit the import of this particular product. Many authors argue or assume that production processes as such are not an (essential) element of the final product, even though the environmental impacts of such processes may vary significantly. Hence, there is a general presumption that, at least under world trade law, import prohibitions on this ground are not allowed.

Several arguments can be, and have been, put forward against the use of PPM regulations. First, under international law, states are not allowed to infringe upon the territorial sovereignty of other states, nor can they interfere in the domestic affairs of another state. Thus, the imposition of rules with extraterritorial effects can be considered illegitimate on several grounds.[23] On formal grounds, process measures can be said to undermine the rationale of well-established international law. From an economic viewpoint, process measures can be considered unwelcome due to their potentially coercive nature, in particular in regard to small and developing countries. It may well be that such countries are highly dependent on exports to the imposing state so that, in effect, they are coerced to adopt a certain standard. Moreover, a pluralist argument

21 Several authors disagree that PPMs must be regarded as extraterritorial. See, for instance, Robert L Howse and Donald H Regan, 'The Product/Process Distinction – An Illusory Basis for Disciplining "Unilateralism" in Trade Policy' (2000) 11 European Journal of International Law 249, 274; Regan, 'How to Think about PPMs' (n 19) 112–13; Vranes (n 19) 181. Additionally, for a more extensive discourse on the concept of extraterritoriality and diverging views on it, see Vranes (n 19) 97–170.

22 Lester and Mercurio refer to 'extremely sensitive' measures. See Simon Lester and Bryan Mercurio, *World Trade Law: Text, Materials and Commentary* (Hart 2008, reprinted 2010) 388. On the history of the debate on PPMs, see Conrad (n 19) para 1.3.

23 More details in Ankersmit, *Green Trade* (n 17) 8–14, 129–38.

against PPMs measures is that diversity and disagreement between states should be respected as no objective, universal truth or 'righteousness' exists. In this light, process measures can be seen as a lack of tolerance for diversity. A further argument against the imposition of process measures is that their use results in unilateralism,[24] rather than resolving transnational problems through multilateral solutions, which is one of the foundations of international (trade) law.[25] In addition, as a result of this unilateralism, other states' interests may not be represented sufficiently in the decisions taken, resulting in power without accountability.[26] Thus, these measures might be used for protectionist purposes.[27] Taking it a step further, process measures could even be considered paternalistic, or might be regarded as 'eco-imperialism'.[28] Also, from a practical perspective, the non-regulating state might simply be in a better position to address the issues within its territory. The risk of power without accountability can play a role between states, but also within the regulating state itself. In instances where process measures take a different form than traditional command-and-control regulation, their use may lead to concerns over who regulates whom or the adoption can interfere with the division of regulatory competences within that state.

Despite these legitimate concerns over the imposition of process measures, at the same time states (and/or the EU *en bloc*) may have a legitimate interest in exercising such extraterritorial jurisdiction.[29] Such interests range from addressing transboundary harm by which a state is affected; to protecting universal or common interests or even non-material interests, such as morals and ethical values; to ensuring the effectiveness of national policies. Thus, the prime argument in favour of process measures is a practical one: such measures may simply be required due to the lack of global governance necessary to address important issues, including climate change. Furthermore, while one state cannot force another to adopt a certain standard, the opposite is also true. Therefore, in principle, all states should be able to set their own standards for (imported) products, at least to the extent that these are not discriminatory. In this respect, it is important to bear in mind that there is a difference between legislative or prescriptive jurisdiction and enforcement jurisdiction.[30] Clearly, extraterritorial enforcement of one's norms or standards would infringe the sovereignty of another state, but prescribing a certain standard for production would not necessarily. Categorical rejection of such measures would imply that any (environmental) product standard is (too) coercive, while in fact the single observation that a standard affects foreign production is insufficient to consider the measure to be illegitimate.[31] Instead, important factors in determining the legitimacy of a measure are whether it is applied *erga*

24 In the case of mandatory use of BAT throughout the EU, it can be debated whether these BAT constitute unilateral measures *vis-à-vis* its trading partners, or whether they must be considered as multilateral measures since they were agreed upon at supranational level. For the purpose of this article the latter will be assumed.

25 Ankersmit, *Green Trade* (n 17) 14–20. On the distinction between unilateralism and extraterritoriality, see Vranes (n 19) 173–75.

26 Gareth T Davies, 'International Trade, Extraterritorial Power, and Global Constitutionalism: A Perspective from Constitutional Pluralism' (2012) 13 German Law Journal 1203, 1208.

27 Holzer (n 18) 95.

28 Charnovitz (n 19) 62.

29 More elaborately, see Ankersmit, *Free Trade* (n 17) 252–80.

30 Ankersmit, *Green Trade* (n 17) 8–14, 65–70.

31 See also Charnovitz (n 19) 73; Howse and Regan (n 21) 274–79.

omnes and what form it is cast in. In regard to producer-based process measures, no enforcement of production rules occurs abroad so that, in principle, there is no violation of jurisdictional competences under international law.[32] Nevertheless, *de facto* enforcement may occur if the producing country is highly dependent on exports to the regulating country and thus has no choice but to adopt the same standard.[33] However, generally, as long as the standards are applied to all producers both inside and outside one's territory, this method of setting barriers to market entry can be a very effective way of enhancing and upholding one's standards in a non-coercive, proportionate and non-discriminatory manner. Thus, at first sight, law does not per se preclude implementing stricter and more holistic BAT requirements through process measures. This notion, coupled with the magnitude of the interest at stake,[34] means that such measures, in the author's opinion, serve a legitimate purpose and are proportionate to their aims. Similarly, several authors consider the protection of the global commons a ground for allowing measures with extraterritorial effects.[35] Whether this holds true from a legal perspective is the subject of the analysis of the next section.

3. The legality of process measures

3.1. *World Trade Organization*

The debate on the legality of process measures is most fiercely fought under the umbrella of the WTO and is hitherto unsettled.[36] Of all the treaties that fall under this umbrella, the General Agreement on Tariffs and Trade (GATT) is the most important one in regard to imposing import restrictions on the basis of an extended BAT concept.[37] Four provisions of this treaty are particularly relevant, and will be discussed here.[38] First, Article I ('most-favoured-nation' (MFN) treatment) prohibits discrimination among trading partners, while Article III ('national treatment' (NT)) prohibits

32 Vranes (n 19) 166–67.
33 Howse and Regan (n 21) 277.
34 This is implementing ecological governance to avert further ecosystem degradation.
35 See Holzer (n 18) 163–64, fn 583 especially.
36 Holzer (n 18) 91. She argues that it is not clear whether process measures are accepted, but that they have not been declared illegal (*ibid* 97).
37 Elements of BAT that would fall under other WTO agreements are not discussed here for lack of space. Consequently, the Agreement on Agriculture (AoA), the Agreement on Subsidies and Countervailing Measures (SCM), the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), the Agreement on Trade-Related Investment Measures (TRIMs) and the General Agreement on Trade in Services (GATS) are left aside here. However, trade in services will be mentioned briefly in section 4.2 when discussing the goods–services divide. For a full appraisal of WTO law, see Peter Van den Bossche and Werner Zdouc, *The Law and Policy of the World Trade Organization: Text, Cases and Materials* (CUP 2013). Furthermore, the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT) are also left aside in this article, since they are generally believed not to apply to npr-PPMs. (More details in: Arkady Kudryavtsev, 'The TBT Agreement in Context' in Tracey Epps and Michael J Trebilcock (eds), *Research Handbook on the WTO and Technical Barriers to Trade* (Edward Elgar 2013).) However, this stance is disputed, as several authors argue that (at least certain) npr-PPMs are covered by the TBT Agreement. This dissenting opinion can for instance be found in Vranes (n 19) 342; Joost Pauwelyn, 'Carbon Leakage Measures and Border Tax Adjustments under WTO Law' in Geert Van Calster and Denise Prévost (eds), *Research Handbook on Environment, Health and the WTO* (Edward Elgar 2013) 485; Matsushita and others (n 19) 443, fn 50; Van den Bossche and Zdouc (above, this note) 855.
38 Owing to space restraints, a full appraisal of these provisions is beyond the scope of this article. More elaborate discussions can be found in Michael Trebilcock, Robert Howse and Antonia Eliason (eds),

discrimination against foreign products.[39] Additionally, Article XI prohibits quantitative restrictions on imports. These three provisions aim to promote trade and eliminate barriers and/or protectionist measures by states. At times, however, states may have a legitimate interest either in differential treatment or in restricting trade in specific products. For these situations, Article XX provides general exceptions to the GATT rules. To justify a measure essentially, three conditions must be met: (i) the measure must fall under one of the listed exceptions, (ii) it must be applied non-discriminatorily and (iii) it must not form a disguised restriction on trade.

Without going into all the details, Article I requires 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.[40]

Article III states, *inter alia*, 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.[41]

These phrases demonstrate that, in the application of both Articles I and III, the definition of 'like products' is a crucial element.[42] If a product is considered to be different on the basis of its production process, differential treatment of these products would not lead to violation of these provisions. However, likeness is not defined in any of the WTO treaties[43] and the general consensus is that, *prima facie*, WTO law considers products alike, despite diverging production processes. According to case law, the likeness of products must be assessed on a case-by-case basis while taking account of all the specific circumstances. Traditionally, likeness is determined on the basis of four criteria: (i) the properties, nature and quality of the products; (ii) the end-uses of the products; (iii) consumers' perceptions and behaviour in respect of the products; and (iv) the tariff classification of the products.[44] Each of these four criteria must be examined to

The Regulation of International Trade (Routledge 2013); Matsushita and others (n 19); Van den Bossche and Zdouc (n 37); Lester and Mercurio (n 22).

39 Lester and Mercurio (n 22) 278. These provisions are thus an expression of one of the core values of the WTO system: non-discrimination (see Matsushita and others (n 19) 155).

40 Shortened version of GATT Art I.

41 Shortened version of GATT Art III.4, which is the paragraph applicable to internal laws and regulations.

42 Further details in assessing the compatibility of measures with Arts I and III are not discussed at length here. For the purpose of this article, it is assumed that by applying EU rules to all trading partners alike, there is no violation of Art I in terms of discrimination. However, under Art I it is important that the contested import ban avoids not only *de jure* discrimination, but also *de facto* discrimination. Regarding Art III, it is for now assumed that prescribing BAT would qualify as a regulation affecting the internal sale of a product, but that this does not accord less favourable treatment to foreign products. For more elaborate discussions of these two provisions, see the more general WTO handbooks referred to in nn 19, 22 and 37 above.

43 Holzer (n 18) 108.

44 WTO, *WTO Analytical Index: Guide to WTO Law and Practice – GATT 1994* www.wto.org/english/res_e/booksp_e/analytic_index_e/gatt1994_e.htm accessed 22 May 2017. (WTO Interpretive Notes), on Art I (no 42) and Art III (no 241 et seq). See also Thomas Cottier and others, 'Differential Taxation

make an overall determination.[45] Yet, these criteria are neither exclusive nor carved in stone.[46] Furthermore, the term 'likeness' is not necessarily identical in all WTO provisions,[47] but rather 'evokes the image of an accordion… [that] stretches and squeezes in different places as different provisions of the WTO Agreement are applied'.[48] Moreover, depending on the context, products with different physical characteristics can be like if they are competitive or substitutable.[49] In fact, this substitutability is the essence of likeness under Article III.4.[50] At the same time, not all competitive products are necessarily like,[51] which puts the emphasis back on the importance of consumers' perceptions of products.[52] As a result, in the wording of the Appellate Body (AB) of the WTO: 'there can be no one precise and absolute definition of what is "like"'.[53] However, in practice PPMs are hardly ever accepted,[54] and some argue that opening the door to PPMs may pose an 'existential threat' to the WTO system.[55] Simultaneously, the use of PPMs may be required to ensure sustainable development, which is part of the WTO's mandate.[56] As the terms of the treaty must be interpreted 'in the light of contemporary concerns',[57] it seems that, all in all, the treaty as such, as well as the case law up to date, does not per se preclude a more holistic approach in the interpretation of likeness, nor does it preclude the inclusion of production processes as a significant element in determining likeness.[58]

Unlike under GATT Articles I and III, determining a violation of Article XI does not depend on the interpretation of 'like products'. Instead, case law on Article XI revolves around the meaning of the term 'restriction', which clearly applies to outright import prohibitions based on ecological BAT requirements.[59] However, such restrictions are only prohibited if they are external measures, that is, enforced at the border and

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of Electricity: Assessing the Compatibility with WTO Law, EU Law and the Swiss-EEC Free Trade Agreement' (18 April 2014) 31 www.wti.org/media/filer_public/fb/81/fb8178a9-89e5-48ed-a313-e3d53702c4d1/es2050_zweite_etappe_differenzierte_stromsteuern.pdf accessed 22 May 2017.

45 WTO, *European Communities – Measures Affecting Asbestos and Asbestos Containing Products – Report of the Appellate Body* (5 April 2001) WT/DS135/AB/R (*EC – Asbestos*) para 109. See also WTO Interpretive Notes (n 44) no 331.

46 WTO Interpretive Notes (n 44) no 343.

47 Trebilcock, Howse and Eliason (n 38) 74–76; Conrad (n 19) ch 4.

48 WTO, *Japan – Taxes on Alcoholic Beverages* (AB-1996-2) *Report of the Appellate Body* (4 October 1996) WT/DS8/AB/R, WT/DS10/AB/R and WT/DS11/AB/R (*Japan – Alcoholic Beverages*) para 114.

49 Matsushita and others (n 19) 165; *EC – Asbestos* (n 45) para 99.

50 Lester and Mercurio (n 22) 308.

51 *Ibid*.

52 Vranes (n 19) 194 and 324.

53 *Japan – Alcoholic Beverages* (n 48) 21.

54 Npr-PPMs are traditionally not thought to be relevant in determining likeness, see Van den Bossche and Zdouc (n 37) 328.

55 Matsushita and others (n 19) 190–91.

56 See the preamble of the WTO Treaty, and Van den Bossche and Zdouc (n 37) 83. As a result of these ambiguities, scholars are divided on the matter. Some say process-based measures do not necessarily violate Art III (Regan, 'How to Think about PPMs' (n 19) 119), while others say they do, but that this can be justifiable via Art XX (Daniel C Crosby, 'Tilting at Conventional WTO Wisdom' in Thomas Cottier, Olga Nartova and Sadeq Z Bigdeli (eds), *International Trade Regulation and the Mitigation of Climate Change* (CUP 2009) 126).

57 WTO Interpretive Notes (n 44) no 935.

58 In fact, in *EC – Asbestos* (n 45), the AB allowed non-economic interests and values to be considered in determining likeness, see Van den Bossche and Zdouc (n 37) 391.

59 For this reason, the case law discussing the ambiguities of this provision is not addressed.

applied solely to imports (or exports).[60] This is hence a vital difference between Articles III and XI: the former applies to internal regulations, while the latter concerns border measures.[61] The classification of a measure under Article III or Article XI is crucial, because Article III permits internal measures that are non-discriminatory, while Article XI prohibits any of the covered border measures.[62] In the case of BAT standards, identical restrictions are imposed on domestic products. According to the WTO website, even if such measures are enforced at the border, they fall under the scope of Article III, rather than Article XI.[63] In other words, the mere fact that a measure is enforced at the border of the EU does not transform it from an internal measure into an external measure. After all,

> an export ban is merely one modality of enforcing a general regulatory decision that a product is too risky to be consumed or released in the environment; the general regulatory decision is the real measure, and not being targeted at exports, it should not be considered a violation of article XI.[64]

Analogously, to EU-wide BAT requirements affecting imports, Article III applies rather than Article XI. This brings the concept of likeness to centre stage once more. On the basis of the likeness analysis conducted above, upholding such requirements at the borders of the EU does not necessarily violate GATT provisions, as long as the criteria on which they are based are objective and transparent, and applied to domestic and foreign products (and production processes) alike.

Nevertheless, even if a breach of GATT provisions were established, such a violation might be justifiable via GATT Article XX.[65] Regarding the use of stringent BAT, two of the ten listed exceptions could serve as a justification. One ground is that a measure can be 'necessary to protect human, animal or plant life or health' (Article XX(b)), another option is that it may relate 'to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption' (Article XX(g)). In addition, for a measure to be justified, the conditions of the introductory clause ('the chapeau') of Article XX must also be fulfilled. The chapeau focuses on *how* a measure is applied, rather than what it entails. It demands that measures are 'not applied in a manner which constitute[s]… arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade…'.

Under Article XX(b), elements to consider in determining the necessity of a measure are, *inter alia*, the contribution that it makes to the policy objective, the importance of the

60 See also Ankersmit, 'Globalization' (n 17) 87.
61 Van den Bossche and Zdouc (n 37) 354; Matsushita *et al.* (n 19) 212.
62 Matsushita and others (n 19) 240; Vranes (n 19) 251.
63 WTO Interpretive Notes (n 44) *ad* Art III. Normally, either one of the two provisions is applicable. However, the potential for overlap between the two is not excluded by the AB (WTO, *India – Measures Affecting the Automotive Sector* (AB-2002-1) *Report of the Appellate Body* (19 March 2002) WT/DS146/AB/R and WT/DS175/AB/R (*India – Autos*) para 7.224, and/or Van den Bossche and Zdouc (n 37) 354–55).
64 Trebilcock, Howse and Eliason (n 38) 705.
65 Once more, for a full discussion of this provision, see the more general handbooks, such as the ones mentioned in nn 19, 22 and 37 above.

interests at stake, and its impact on trade.[66] While the impact of stringent BAT requirements on trade is severe, so is the interest at stake.[67] In the *Korea – Beef* case, the AB pointed out that the more vital or important the pursued interest is, the easier it is to accept the measures taken as necessary.[68] This necessity is also partially determined by whether any less-trade-restrictive alternatives are 'reasonably available'.[69] In assessing the availability of these alternatives, important factors are the difficulty of implementing alternative measures, the importance of the interest that it is sought to protect, and whether the alternative provides the same level of protection. In *Brazil – Retreaded Tyres*, for instance, the AB ruled that alternative, remedial measures were not real alternatives to the import ban that had been imposed.[70] Analogously, in regard to global warming and climate change, remedial measures should never be considered an adequate alternative.[71] Furthermore, in the same case, the AB acknowledged that certain complex environmental problems (such as global warming or climate change) may be tackled only with a comprehensive policy comprising a multiplicity of interacting measures. The results of these myriad measures can only be evaluated over time. Hence, the baseline in assessing the necessity of a measure is whether it is 'apt to produce a material contribution to the achievement of its objective'.[72] Additionally, it is not required that the risk that the measure aims to diminish is quantified and, furthermore, states are free to set their own level of protection.[73] In the case of BAT requirements, the concept is already tried and tested and generally conceived to be an effective tool in environmental protection. Moreover, air quality and waste reduction have been accepted to fall within the range of Article XX(b),[74] so that it would be inconsistent to exclude the more comprehensive approach of BAT from relying on this provision. Combined, these arguments should suffice to demonstrate a 'genuine relationship of ends and means', in the words of the AB.[75] Lastly, the AB demands that 'the weighing and balancing is a holistic operation that involves putting all the variables of the equation together and evaluating them in relation to each other after having examined them individually, in order to reach an overall judgement'.[76] This reasoning is similar to the ecological governance approach that is advocated throughout this article.

66 WTO, 'WTO Rules and Environmental Policies: GATT Exceptions' www.wto.org/english/tratop_e/envir_e/envt_rules_exceptions_e.htm accessed 22 May 2017.

67 How climate change affects health is briefly summarised in Kati Kulovesi, 'Real or Imagined Controversies? A Climate Law Perspective on the Growing Links between the International Trade and Climate Change Regimes' (2014) 6 Trade, Law and Development 55, 62–63; and extensively described in several UNFCCC reports.

68 WTO, *Korea – Measures Affecting Imports of Fresh, Chilled and Frozen Beef* (AB-2000-8) *Report of the Appellate Body* (11 December 2000) WT/DS161/AB/R and WT/DS169/AB/R (*Korea – Beef*), para 162.

69 See also Van den Bossche and Zdouc (n 37) 557.

70 WTO, *Brazil – Measures Affecting Imports of Retreaded Tyres* (AB-2007-4) *Report of the Appellate Body* (3 December 2007) WT/DS332/AB/R (*Brazil – Retreaded Tyres*).

71 Especially when considering that global temperatures have already risen by 1°C (World Meteorological Organization (WMO), *WMO Statement on the State of the Global Climate in 2016*, WMO-No 1189 (WMO 2017) 4 http://library.wmo.int/opac/doc_num.php?explnum_id=3414) accessed 22 May 2017, while the international community is aiming to halt this rise at 1.5°C, or at maximum at 2°C (Paris Climate Treaty (n 1)).

72 *Brazil – Retreaded Tyres* (n 70) para 151.

73 *EC – Asbestos* (n 45) paras 167–68; and Lester and Mercurio (n 22) 392.

74 Van den Bossche and Zdouc (n 37) 554.

75 *Brazil – Retreaded Tyres* (n 70) para 145.

76 *Brazil – Retreaded Tyres* (n 70) para 182.

Under Article XX(g), two elements are important. First, the measures must be 'relating to' the conservation of 'exhaustible natural resources'. The phrase 'relating to' requires the establishment of a substantial relationship between the measure and the conservation, which is in practice interpreted to mean 'reasonably related'.[77] Additionally, the term 'exhaustible natural resources' is interpreted broadly and is not limited to mineral or non-living resources. Furthermore, this term must be interpreted 'in the light of contemporary concerns of the community of nations about the protection and conservation of the environment'.[78] Given the recent adoption of the Paris Climate Treaty, it can be said with certainty that the earth itself on which we all depend for our lives and livelihoods can be considered an exhaustible natural resource that needs to be preserved.[79] The second central feature of Article XX(g) is an even-handedness requirement: the measures must be 'made effective in conjunction with restrictions on domestic production or consumption'. Since BAT are to be considered internal regulations, which apply to European producers as well as foreign ones, this last condition is also fulfilled.

Whether recourse to the exceptions of Article XX is impeded by the territorial boundaries of the regulating state is so far undetermined.[80] The answer to that question is influenced by whether a regulating state is itself affected by the activities abroad. In relation to climate change, which is a global and transboundary problem, it can be argued that the state imposing measures is indeed affected and that there is 'sufficient nexus'[81] between the conduct abroad and the effects felt within the regulating state.[82]

Once it is established that one or more of the exceptions applies, it is time to consider whether the measure is applied *in a manner* that is consistent with the chapeau of Article XX. The purpose of the chapeau is to avoid abuse of the exceptions and this should be kept in mind throughout its interpretation.[83] While initially the AB argued that unilateral trade-restricting environmental (process) measures are per se inconsistent with the chapeau of Article XX and the multilateral trading system as such,[84] it later found that such PPM measures are not per se inadmissible.[85] In *Tuna-Dolphin II*, the AB argued that (trade) measures that force other parties to change the policies within their own jurisdictions are not allowed, because they undermine the multilateral trading system.[86] However, in *US – Shrimp*, the AB provided more

77 WTO, *United States – Standards for Reformulated and Conventional Gasoline – Report of the Appellate Body* (20 May 1996) WT/DS2/AB/R, DSR 1996:I, 3 (*US – Gasoline*); WTO, *United States – Import Prohibition of Certain Shrimp and Shrimp Products, Appellate Body Report* (6 November 1998) WT/DS58/AB/R, DSR 1998:VII, 2755 (*US – Shrimp*).

78 WTO Interpretive Notes (n 44) no 935.

79 See Holzer (n 18) 195.

80 Van den Bossche and Zdouc (n 37) 551.

81 *US – Shrimp* (n 77) para 133.

82 Arguably, reliance on Art XX(g) would be easier to construct than reliance on Art XX(b), but ultimately both justifications are served by strict production requirements that significantly reduce emissions (see also n 67).

83 *US – Gasoline* (n 77); See also WTO Interpretive Notes (n 44) no 855; or Van den Bossche and Zdouc (n 37) 572–81.

84 GATT Panel Report, *United States – Restrictions on Imports of Tuna* (3 September 1991, unadopted) DS21/R, BISD 39S/155WTO (*Tuna-Dolphin I*).

85 See also Conrad (n 19) para 1.2.

86 GATT Panel Report, *United States – Restrictions on Imports of Tuna* (16 June 1994, unadopted) DS29/R (*Tuna-Dolphin II*).

leeway by ruling that only forcing others to adopt *essentially the same policies* is not allowed.[87] At the same time, it is not prohibited to require other states to put measures in place that are 'comparable in effectiveness'.[88] The crux in this assessment is whether the contested measure leaves sufficient flexibility.[89] Thus, the chapeau provides a check on whether the measures are applied in good faith. Jurisprudence has highlighted circumstances that help to demonstrate accordance with the chapeau.[90] These include the attempts made by the regulating state to arrive at a solution in cooperation; the design of the measure; its flexibility to take into account differences in countries and/or the existence of objective criteria for any distinctions; as well as the rationale for the measures.

In regard to EU-wide BAT requirements, the latter three circumstances seem to be in order: BAT requirements are a flexible instrument based on objective, transparent criteria; they are explicitly applied 'without prescribing the use of any technique or specific technology'; and their rationale is 'to achieve a high level of protection of the environment taken as a whole'.[91] Regarding any endeavours to find a multilateral solution, the AB holds that, although a multilateral approach is strongly preferred, attempts to conclude a multilateral agreement are not a prerequisite for recourse to Article XX.[92] Hence, the use of ecological BAT requirements seems to fall within the range of what is considered good faith. As such, extending their scope of application to imported products cannot be regarded as (arbitrary or unjustifiable) discrimination, or as a disguised restriction on trade. Since BAT requirements already apply to production processes that take place on EU territory, applying the BAT concept to a broader geographical area cannot be considered a protectionist measure.[93] Coupled with the urgency and gravity of the interest at stake (averting further climate change) and the realisation of the major societal changes this demands, especially in regard to production and consumption patterns, it can be said that less-trade-restrictive alternatives are not available, as these would be unlikely to achieve the level of protection sought. Thus, despite what is commonly held, it appears that nothing in the GATT precludes the adoption of stringent, ecological BAT requirements,[94] nor does it preclude the enforcement of such internal regulations at the borders of the EU.[95]

87 *US – Shrimp* (n 77) para 161 et seq.
88 Pauwelyn (n 37) 502; Holzer (n 18) 169, fn 619.
89 *US – Shrimp* (n 77) para 144.
90 See WTO (n 66).
91 IED (n 10) Arts 15(2) and 1 respectively.
92 Trebilcock, Howse and Eliason (n 38) 678, as also affirmed by Vranes (n 19) 330. However, Van den Bossche and Zdouc disagree and claim that if no serious effort is made, this can render discrimination unjustifiable (see Van den Bossche and Zdouc (n 37) 578). Another discussion (left aside here) would be to what extent the recent Paris Climate Treaty can serve as legitimation for stringent trade-restrictive measures such as the one at hand.
93 After all, these BAT cannot be used as a (disguised) protection of EU industries, since these industries are subjected to identical rules. In fact, not enforcing these BAT at the borders of the EU would lessen their effectiveness as a climate protection strategy (see also Regan, 'How to Think about PPMs' (n 19) 110). However, this does not mean that npr-PPMs can never be used for protectionist reasons, but this is no different than for pr-PPMs, argues Regan (n 19) 103. Furthermore, such stringent standards can at times be coercive as they may affect certain countries disproportionately, thus leading to *de facto* discrimination (see also Lester and Mercurio (n 22) 416).
94 In fact, the WTO is obliged to interpret its treaties in light of contemporary concerns, as the terms in it are not static. See *US – Shrimp* (n 77) paras 128–30; Van den Bossche and Zdouc (n 37) 566.
95 Admittedly, no final answer to this debate can be given without concrete examples and cases, as observed by Kulovesi (n 67) 73.

3.2. *Energy Charter Treaty*

In addition to the WTO rules, the ECT provides the multilateral framework for energy cooperation.[96] By and large, this treaty is streamlined with the obligations under the WTO rules. Article 4 of the ECT states that, between parties that are both also members of the WTO, nothing in the ECT shall derogate from the provisions of the WTO. This means that all the rules discussed above automatically apply in full to trade in energy materials and energy products as well as to trade in the listed energy equipment.[97] In the (unlikely) event that one of the parties is not a member of the WTO, the trade in energy products and equipment is governed by Article 29 of the ECT, which essentially declares that the relevant WTO provisions law are also applicable in this case.

Similar to the WTO, the ECT focuses on trade liberalisation, rather than environmental protection. This is apparent in Article 19, which deals with the environmental aspects, as it provides a central role for the cost-effectiveness and economic consequences of environmental measures. For instance, this provision acknowledges, *inter alia*, the polluter pays principle, but requires its implementation only to the extent that it can be done 'without distorting investment in the energy cycle or international trade'.[98] Rather than imposing stringent obligations, Article 19 demands that members cost-effectively strive to minimise environmental impacts throughout the energy cycle. Special attention is paid to increasing energy efficiency, which is also elaborated on in an additional protocol.[99] Additionally, Article 24 of the ECT allows for derogations from the treaty obligations if the measures taken are 'necessary to protect human, animal or plant life or health'.[100] Despite these provisions, the ECT is overall predominantly aimed at protecting and promoting energy-related investment, trade and transit, instead of decreasing the negative impacts of energy cycles.[101] As such, it barely provides room for stringent BAT requirements. However, because of the coupling of the ECT rules with WTO membership, in effect only the leeway found under WTO rules is relevant in assessing the legality of these requirements.[102]

3.3. *European Union*

Under EU law, different issues come to the foreground when assessing the legality of imposing and enforcing trade restrictive measures. These issues partly pertain to the

96 Energy Charter Treaty (1994), as amended by, *inter alia*, the Amendment to the Trade-related Provisions of the Energy Charter Treaty (1998). Consolidated version (2015) and related documents at: www.energycharter.org accessed 22 May 2017.

97 Energy materials and products are, for instance, coal, oil, gas, wood and electricity, whereas energy-related equipment are the tubes, structures, reservoirs, cables, etc that are used to extract or transport energy materials and products. The lists can be found in Annex EM I and EQ I respectively.

98 ECT (n 96) Art 19(1).

99 Energy Charter Protocol on energy efficiency and related environmental aspects (1994).

100 ECT (n 96) Art 24(2)(b)(i). This phrase is identical to GATT Art XX(b). However, the scope of this provision is rather limited, as is clear from its introductory paragraph.

101 See also Rafael Leal-Arcas, Andrew Filis and Ehab S Abu Gosh, *International Energy Governance: Selected Legal Issues* (Edward Elgar 2014) 346–50.

102 For a more elaborate analysis of the ECT, see: Craig Bamberger and Thomas Wälde, 'The Energy Charter Treaty' in Martha M Roggenkamp and others (eds), *Energy Law in Europe: National, EU and International Regulation* (OUP 2007).

EU's unique legal structure and *inter alia* concern questions on who has the competence to regulate (the EU, the Member States or both)[103] and to what extent Member States can impose their own unilateral (more stringent) measures.[104] Furthermore, it is important that the measures taken are proportionate to their aims. This basically means that they must be both appropriate and necessary.[105] Neither of these issues will be addressed in detail here. The issue of competence does not need to be addressed, because the mandatory use of BAT has been commonplace in industrial (emissions) regulation since the 1990s and there are no controversies over the EU's competence to regulate this area.[106] The same holds true for the proportionality of BAT standards as a legal instrument. Unilateral measures are not addressed, because this article concerns itself primarily with EU-wide agreed BAT standards. The focal point of the analysis in this article is solely on (the legality of) measures that are applied by EU members *vis-à-vis* third countries, aiming to uphold EU-wide standards. In the case of 'external' application of BAT requirements, rather than the general Treaty on the Functioning of the European Union (TFEU), a regulation on the common rules for imports applies.[107] This regulation, like the TFEU, prohibits quantitative restrictions on imports from third countries.[108] However, it also explicitly declares that this does 'not preclude the adoption or application by Member States of prohibitions, quantitative restrictions or surveillance measures on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants…'.[109] On these grounds, first time imports from third countries can be halted.[110] Despite the fact that the regulation focuses mainly on unilateral actions taken by the Member States, it also applies to external enforcement of EU measures. In regard to such 'enforcement', the Court of Justice of the European Union (CJEU) is more permissive than the WTO dispute panels. In general, it holds the stance that process measures are not per se inadmissible, since they do not regulate directly abroad, but incentivise jurisdiction through market access.[111] Furthermore, this stance is coupled with a broad interpretation of territoriality. In fact, '[t]he territorial "trigger" that justifies the EU's jurisdiction is employed loosely, so there is little doubt

103 On the basis of Art 4(2) of the Treaty on the Functioning of the European Union (TFEU), regulatory competence in the field of energy as well as environmental policy is shared between the EU and the Member States (see also Leal-Arcas, Filis and Abu Gosh (n 101) 275–95). For an extensive description of the full body of EU energy law, see Martha M Roggenkamp and others (eds), *Energy Law in Europe: National, EU and International Regulation* (OUP 2016). Moreover, EU environmental law in its broadest sense is discussed elaborately in Jan H Jans and Hans HB Vedder, *European Environmental Law: After Lisbon* (Europa Law Publishing 2012).

104 Related to the latter is the importance of the (correct) legal basis for legislation and the level of discretion left to the Member States (see also Ankersmit, *Green Trade* (n 17) 77). This is elaborated on in Lorenzo Squintani, 'Gold-plating of European Environmental Law' (PhD law thesis, Groningen 2013).

105 See also Ankersmit, *Green Trade* (n 17) 137–139. On how far 'climate responsibilities' actually go, see: Joanne Scott, 'The Geographical Scope of the EU's Climate Responsibilities' (2015) 17 Cambridge Yearbook of European Legal Studies 92. An earlier draft (15 May 2015) is available at SSRN: http://ssrn.com/abstract=2606681 accessed 22 May 2017.

106 Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control [1996] L257/26 (IPPC Directive, now incorporated in the IED (n 10)).

107 Council Regulation (EC) No 260/2009 of 26 February 2009 on the common rules for imports [2009] OJ L84/1 (Imports Regulation).

108 *Ibid*, Art 1.

109 *Ibid*, Art 24.

110 Ankersmit, *Green Trade* (n 17) 83.

111 *Ibid*, 65–70.

that process-based measures enforced within the EU's borders would be found compatible with the rules of customary international law as interpreted by the ECJ'.[112]

It is, therefore, not surprising that quite a few producer-based process measures with extraterritorial effects are currently in force in the EU. Ankersmit lists and describes these directives and regulations,[113] and these rules serve as guidance in assessing the legality of ecological BAT-based process measures. First, there is the Seal Products Regulation, which essentially bans the marketing of all seal products, with a few exceptions.[114] These exceptions relate to specific traits of the producers, for example, produce from certain indigenous peoples can be marketed.[115] Thus, this regulation constitutes a producer standard, rather than a 'how produced' standard. This is a significant difference from the BAT concept. Secondly, the EU has imposed a ban on illegally harvested wood through the adoption of the Timber Regulation.[116] The legality of such timber hinges upon the legislation in place in the country of origin. As such, this EU regulation reinforces the existing rules abroad, whereas BAT requirements ensure compliance with EU rules. Thirdly, there is the Cosmetics Regulation, which bans the import of cosmetics that were produced using animal testing.[117] It is up to producers to show compliance with the Regulation.[118] Thus, this is a 'how produced' standard that shows resemblance with the BAT concept, as in both cases the legality of marketing a product depends on being able to identify and verify the production methods used abroad. The fourth example concerns the treatment of pigs and calves.[119] Via two directives, EU law requires that imported pigs and calves coming from outside the EU must 'have received treatment [prior to their importation] at least equivalent to that granted to animals of Community origin'.[120] To demonstrate compliance, it is required that the animals be accompanied by a certificate issued by the competent authority of that third country.[121] In effect, the protection of these animals is thus extended beyond EU borders. A similar example of extraterritorial application of EU rules can be found in the Regulation on slaughter processes, which declares that imports of meat (similar to live pigs and calves) must 'be supplemented by an attestation certifying that requirements at least equivalent' to those of the Regulation have been abided by.[122] An 'extension' of

112 *Ibid*, 68. This stance was upheld by the court in the aviation case (ECJ Case C–366/10 *Air Transport Association of America and others v Secretary of State for Energy and Climate Change* [2011] ECR I–1133, paras 124–29) as also briefly explained in Holzer (n 18) 158.

113 Ankersmit, *Green Trade* (n 17) 41–64.

114 Regulation (EC) No 1007/2009 of the European Parliament and of the Council of 16 September 2009 on trade in seal products [2009] L286/36.

115 *Ibid*, Art 3.

116 Regulation (EU) 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market [2010] OJ L295/23; and related documents. For a critical appraisal of these rules, see Renske A Giljam, 'Towards a Holistic Approach in EU Biomass Regulation' (2016) 28 Journal of Environmental Law 95.

117 Regulation (EC) 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products [2009] OJ L342/59.

118 *Ibid*, Art 4.

119 Council Directive 2008/119/EC of 18 December 2008 laying down minimum standards for the protection of calves [2009] OJ L10/7; and Council Directive 2008/120/EC of 18 December 2008 laying down minimum standards for the protection of pigs [2009] OJ L47/5.

120 Calves Directive (n 119) Art 8; Pigs Directive (n 119) Art 9.

121 *Ibid*.

122 Council Regulation 1099/2009 of 24 September 2009 on the protection of animals at the time of killing [2009] OJ L303/1, Art 12.

EU rules also occurs upon export of live animals. EU law on animal transport requires a certain minimum level of animal welfare during transport.[123] For this reason, a journey log has to be submitted and authorised prior to transport.[124] Recently, the European Court affirmed that this journey log should cover the entire journey, even if the final destination of the animals is a third country.[125] Thus, in effect, the conditions for transport of animals within the EU are made applicable outside the EU, as long as the journey commences within EU borders.

The above does not mean, however, that these European process measures are uncontroversial, nor that they are without complexities. For instance, the ban on seal products has been challenged before the EU courts, as well as before the WTO dispute panels. This challenge was unsuccessful before the EU courts.[126] Yet, the AB of the WTO did conclude that the EU's seal regime is inconsistent with the GATT.[127] On top of such controversies over process measures, the complexities relating to their implementation may also hinder their application. For instance, to avoid carbon leakage under the Emissions Trading Scheme (ETS), the European Commission could have opted to include imported products in the EU ETS system through process-based measures.[128] Instead, the Commission chose to maintain the current policy of free allocation of allowances, as it is 'mostly concerned with maintaining an open trading system and the good relations with potentially affected countries' as well as 'the host of practical issues well known to process based measures'.[129] These practical issues include increased administrative burdens on economic operators, problems relating to monitoring and verification, and the difficulties in calculating the carbon or GHG content of products. In other instances, however, these difficulties did not prevent the adoption of a life-cycle approach to emissions abatement. The most well-known example in EU law is the use of calculated life-cycle GHG emissions of biofuels as a threshold for their contribution to the EU's renewable energy targets.[130]

These rules illustrate that it is not uncommon for the EU to declare its internal rules applicable to imports, hence 'exporting' its ethical values to third countries.[131] As such, the EU legal framework is rather permissive towards process measures. While the rules on seal products and timber show only a minor resemblance with the use of BAT as a legal instrument, a comparison between BAT and the rules on cosmetics, and on

123 Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97 [2005] OJ L3/1.

124 *Ibid*, Art 5(4) and annex II.

125 Case C–424/13 ECLI:EU:C:2015:259 *Zuchtvieh-Export -Stadt Kempten* (CJEU, 23 April 2015), paras 20, 37 and 56.

126 Case C–398/13P ECLI:EU:C:2015:259 *Inuit Tapiriit Kanatami and Others v Commission* (CJEU, 3 September 2015).

127 WTO, *European Communities – Measures Prohibiting the Importation and Marketing of Seal Products – Report by the Appellate Body* (22 May 2014) WT/DS400/AB/R and WT/DS401/AB/R.

128 For a full appraisal of the ETS, see Edwin Woerdman, Martha Roggenkamp and Marijn Holwerda (eds), *Essential EU Climate Law* (Edward Elgar 2015) ch 3.

129 Ankersmit, *Green Trade* (n 17) 64. See also: Kati Kulovesi, 'Climate Change in EU External Relations: Please Follow My Lead (or I Might Force You To)' in Elisa Morgera (ed), *The External Environmental Policy of the European Union: EU and International Law Perspectives* (CUP 2012) 145.

130 RED (n 15) Arts 17–19. More elaborately, see Giljam (n 116).

131 The EU is known to use unilateral action to force the direction of international climate change policies, say Leal-Arcas, Filis and Abu Gosh (n 101) 517.

imports, exports and slaughter of animals, is more easily made. These latter regulations all demand a specific level of protection (whether this is for animal, human or environmental health reasons) and rule out the import of products that were manufactured using production processes that fall below the line. By applying the same principle analogously to the use of BAT, it seems there are no legal objections to the introduction of an import ban on products that do not abide by stringent, holistic EU BAT standards.

4. BAT and energy production

Summed up, neither the WTO, nor the ECT, nor EU law categorically prohibit the imposition of process measures, nor is the use of BAT as a legal instrument controversial in its own right. Thus, in relation to energy production and use, there appears to be sufficient leeway to implement more stringent BAT requirements and apply them to a broader range of activities.[132] In exploring the potential of BAT for energy production, it is first important to distinguish which elements constitute the energy life cycle. The cycle starts with obtaining primary energy sources. The traditional materials (such as oil, gas or coal) generally need to be extracted, while the newer (renewable) sources must be cultivated (in the case of crops and wood) or 'captured' (eg, sun and wind). These primary sources then need to be converted into usable secondary energy, predominantly refined fuels and electricity. This involves diverging energy technologies, equipment and complex processes. All this energy in its different forms is then transported via different means, including cables, pipes, roads and waterways, in order to finally reach its consumers.[133]

The use of BAT is only mandatory at a minority of moments throughout this energy life cycle, as is depicted in Figure 1. Essentially, BAT requirements apply only to the conversion process of primary to secondary energy, for example, from coal to electricity, and to refineries and fuel production.[134] An authorisation must be obtained for the exploration and exploitation of hydrocarbons, but no use is made of mandatory BAT in the permit conditions.[135] Additionally, mining waste from coal processing and oil shale is covered by a Reference Document on BAT (BREF), while gas and lignite production are not.[136] Furthermore, a BREF regarding unconventional hydrocarbons is currently

132 However, verifying compliance with the BAT will not always be easy. In many cases, conformity can be assessed on the basis of the conditions of the permits of the industrial installations where the products were produced, but this might not be possible in all situations. Detailed information on supply chains and/or related carbon footprints can be difficult or virtually impossible to obtain or verify, as also stipulated by Howse and Eliason (Robert Howse and Antonia L Eliason, 'Domestic and International Strategies to Address Climate Change: An Overview of the WTO Legal Issues' in Thomas Cottier, Olga Nartova and Sadeq Z Bigdeli (eds), *International Trade Regulation and the Mitigation of Climate Change* (CUP 2009) 60–68) and by Kulovesi (see Kulovesi (n 67) 77).

133 Because of these peculiarities of the energy sector, it has been argued that the WTO rules in their current form do not effectively nor sufficiently deal with energy trade and that it would be wise to conclude a separate WTO agreement on energy (Thomas Cottier and others, 'Energy in WTO Law and Policy' (May 2009) NCCR Trade Working Paper No 2009/25, 8 www.wto.org/english/res_e/publications_e/wtr10_forum_e/wtr10_7may10_e.pdf) accessed 22 May 2017.

134 The use of BAT is only mandatory for the activities listed in the IED (see IED Arts 2(1), 10 and annex I), while the BAT themselves are described in separate documents (see n 11).

135 Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons [1994] OJ L164/3, Arts 3 and 5.

136 BREF: Management of Tailings and Waste-Rock in Mining Activities (January 2009, currently under review, see http://eippcb.jrc.ec.europa.eu/reference/BREF/mmr_adopted_0109.pdf) accessed 22 May 2017.

under development, but it is not directly linked to the implementation of any directive and its conclusions will have no legally binding effect on Member States.[137] Also, the use of BAT is not enforced in regard to imported goods.

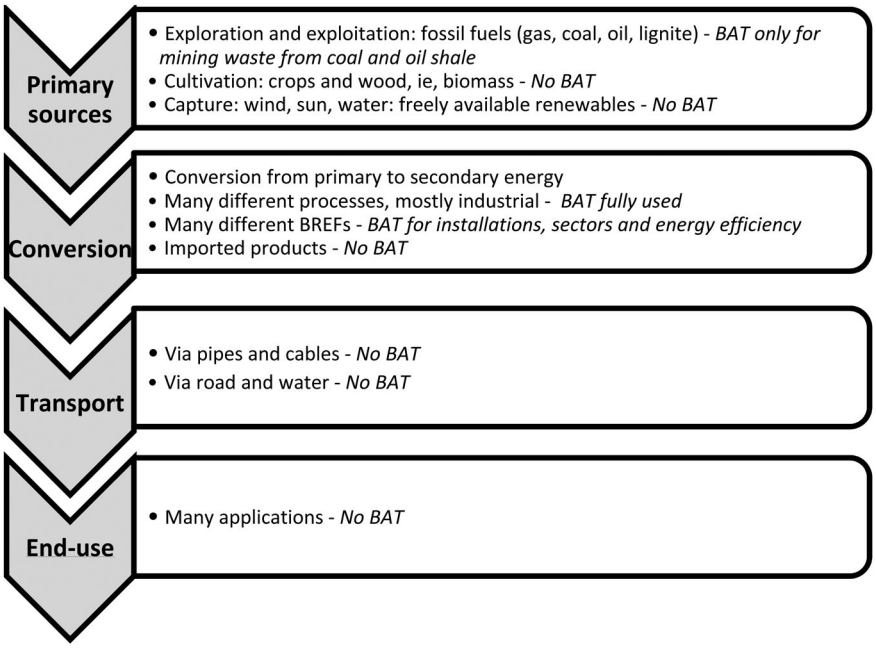

Figure 1. Mandatory use of BAT.

Not only is the use of BAT not mandatory throughout the full product cycle, the concept itself is also interpreted rather narrowly. For instance, different ways of producing coal-based electricity are compared in determining the BAT for coal-fired combustion, but coal-fired combustion itself is not compared to gas or biomass combustion to determine 'overall' BAT for electricity generation. Thus, the primary sources play no role in determining what the BAT are. Comparing the different options for primary sources in determining whether a production process is considered BAT could provide a significant push in the implementation of ecological governance. Such a comparison is (legally) possible, when looking at the criteria for determining BAT as enshrined in the Industrial Emissions Directive (IED). According to this directive, in determining the BAT, 'special consideration' must *inter alia* be given to the nature, effects and volume of the emissions concerned, the need to prevent or reduce the overall impact on the environment, the consumption and nature of raw materials used in the process and energy efficiency, and technological advances and changes in scientific knowledge and understanding.[138] This leaves plenty of room for a broader interpretation of what is considered to be BAT. In fact, it can even be argued that, based on the current

137 'Communication from the Commission on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU' COM/2014/023 final. See also 2 http://ec.europa.eu/environment/integration/energy/hc_bref_en.htm accessed 22 May 2017.

138 IED (n 10) Art 3(11) and annex III.

understanding of (the effects of) climate change coupled with modern-day available technologies, gas has superseded coal and/or lignite as a BAT-worthy energy source. Because of its environmental impacts, any installation using coal or lignite would thus no longer be considered to be using BAT and would accordingly have to be phased out. Similarly, in the near future, gas itself would likely be surpassed by wind and/or solar energy.

It has been argued that this kind of interpretation of BAT is not possible, because it is not up to the authorities to decide which raw materials will be used for energy production, but that this is a choice to be made by 'the market', that is, by the investors of a new installation.[139] Yet the IED does not at all preclude a new interpretation of what is considered BAT. This latter view is strengthened by the explicit reference in the Electricity Directive 'E-Directive' that the nature of the primary sources and the installation's potential for emission reductions are factors to consider in the authorisation of new electricity capacity.[140] Despite this possibility, not many countries have imposed criteria or conditions on the choice of fuels for energy production,[141] nor for fuels used in manufacturing. However, energy efficiency requirements are usually imposed to reduce energy consumption. Nevertheless, current rules are not so stringent that they lead to the refusal of a permit to pollute, as long 'reasonable' safeguard measures are installed. Yet, such reasonableness does not consider external effects or climate change effects, so the resulting environmental damage can still be extensive. A broader BAT interpretation would improve this situation by providing authorities with a tool for declining a permit request if an alternative production method with a lower impact is reasonably available.

4.1. *Defining energy*

Achieving this is, however, easier said than done, because energy is a unique 'product' with specific traits that make its regulation particular precarious. First of all, energy products are of major economic importance, since they form the largest share of world trade.[142] This makes it all the more peculiar that the WTO does not deal explicitly with trade in energy,[143] although the WTO treaties do apply.[144] Additionally, energy is of immense strategic and political value, and the energy sector is important in national and global development.[145] This makes the regulation of energy a highly sensitive topic for states, especially if such regulations may affect their security of supply.

139 As discussed (in Dutch) in Renske A Giljam, 'Schone lucht of schone schijn? Europese regulering van de emissies van NO_x en fijn stof naar lucht door moderne kolencentrales' (LLM thesis, University of Groningen 2011) 11 http://api.commissiemer.nl/docs/mer/diversen/schonelucht-schoneschijn.pdf accessed 22 May 2017.

140 Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC [2009] OJ L211/55, Art 7(1) and (2).

141 As also noted by Adrian J Bradbrook, 'Energy Law as an Academic Discipline' (1996) 14 Journal of Energy & Natural Resources Law 193, 216.

142 Leal-Arcas, Filis and Abu Gosh (n 101) 101.

143 To fill this void, Cottier and others, in 'Energy in WTO Law and Policy' (n 133) argue for a separate WTO agreement on energy.

144 As concluded by Matsushita and others (n 19) 734–39.

145 Leal-Arcas, Filis and Abu Gosh (n 101) 102–03.

This security of supply is also affected by the finiteness of traditional sources and the subsequent need to switch to renewable sources.[146] On top of this, the transport of several types of energy (eg, electricity and gas) significantly differs from that of other products.[147] Last but not least, energy is not a uniform product, but consists of a wide range of primary sources with different physical characteristics and diverging environmental effects. These physical traits also have an impact on how (and whether) this energy can be stored, transported and distributed.[148] In addition to this trade in goods, trade in energy further covers trade in energy-related equipment, energy services and energy technology.[149]

As a result of all this, determining BAT for energy is a complex task. Clearly, an energy production cycle may make use of very different raw materials and a broad range of diverging techniques to which (partially) different legal regimes apply.[150] Most primary energy sources are tradable goods, to which the general rules on trade apply.[151] Nevertheless, the rules governing their respective sectors of origin are different.[152] Also, under WTO law, these materials can be subdivided into agricultural, industrial or even environmental goods and this classification affects what rules are applicable with respect to tariffs or subsidies.[153] What these goods do have in common is that they are all tangible, identifiable products. In addition to primary energy sources, energy equipment and energy technologies are crucial.[154] Not only are these the centrepiece of the BAT concept, they are also indispensable for the production of usable, secondary energy. These technologies, as well as the materials that they are made of, are also tradable, mostly tangible, goods themselves. The status of electricity –the most noteworthy secondary energy source – is, however, more ambiguous, as it can be considered either a good, or a service, as will be discussed in the next section.[155]

Under EU law, energy is also covered by a diffuse set of rules. These range from specific rules on industrial emissions, agricultural practices or timber regulation to more generic rules on the functioning of the market, energy taxes, required shares of renewable energy and standards for energy efficiency.[156] Furthermore, in the EU legal system, the legal basis chosen for the adoption of such laws is also of great significance due to the division of competences between the various institutions and the Member States. For instance, Member States are rarely allowed to unilaterally

146 *Ibid*, 104–05.
147 *Ibid*, 107.
148 *Ibid*, 104.
149 Matsushita and others (n 19) 734.
150 Largely from Gabrielle Marceau, 'The WTO in the Emerging Energy Governance Debate' (*WTO Online Forum*, 2010) www.wto.org/english/res_e/publications_e/wtr10_forum_e/wtr10_marceau_e.htm accessed 22 May 2017.
151 However, some renewable sources (eg, sun and wind) are not goods, but rather 'commons'.
152 These are primarily the agricultural, forestry and mining sectors.
153 See Trebilcock, Howse and Eliason (n 38) 694.
154 The latter two entail the actual tools and machinery for energy conversions, as well as the technological processes behind them that may be subject to intellectual property rights.
155 Marceau (n 150). This distinction is important because the two are subject to different rules. Under the WTO, goods are governed by the GATT and TBT Agreement (Trebilcock, Howse and Eliason (n 38) 695), while services are subject to the GATS. The primary consequence is that under the GATS, as opposed to the GATT, members are not obliged to accept foreign services and suppliers in their market.
156 For a full appraisal see Roggenkamp and others (n 103).

impose more stringent environmental measures in relation to rules regarding the internal market, whereas they are allowed to do so in the case of environmental legislation.[157] For each policy area, a separate legal basis exists, each with different conditions attached to them.[158] On top of this already diffuse situation, most EU laws regulate only one element or a delineated part of the energy chain. The lack of a comprehensive, overarching strategy can lead to fragmentation and, at times, to inconsistent application of specific rules. For instance, this is the case with the use of biomass for energy, where identical materials are subject to sustainability criteria for certain uses, but not for others.[159] Thus, the method of conversion and the final use of these materials in retrospect determine the level of sustainability that is required in the cultivation of this biomass. This kind of fragmentation can be avoided by implementing an integrated approach, such as the ecological governance approach advocated throughout this article.

4.2. *Categorisation and differentiation*

The complexities and characteristics sketched above, and the ambiguous status of electricity in particular, show that it can be a thin line between what is considered a product and what a (production) process. Moreover, Bradbrook even argues that energy conservation, which surely is not a product and arguably not a process,[160] could be considered an (indirect) energy source, since saving energy is as effective in satisfying society's energy demand as generating energy is.[161] Combined, these examples and arguments illustrate that the current black-and-white divide between products and processes is too rigid in its approach and does not always do justice to reality. However, under the WTO terminology, one would expect that electricity from renewables and carbon-based electricity constitute like products as they cannot physically be distinguished from one another[162] and because they are substitutable. Hence, the same rules would in principle apply to both.[163] At the same time, many authors signal that the current classification of energy as either a product or a process is unsatisfactory, and may even complicate the trade in energy.[164] For instance, Holzer argues that the 'doctrine is too stringent',[165] Leal-Arcas, Filis and Abu Gosh speak of an 'artificial

157 TFEU Arts 114(4–6) and 193; Nicolas de Sadeleer, *EU Environmental Law and the Internal Market* (OUP 2014) ch 7.

158 In addition to provisions on adopting rules regarding the internal market (TFEU Art 114) and the environment (TFEU Art 192), there are for instance separate competences for developing commercial policy (TFEU Art 207) and regulating agriculture (TFEU Art 43(2)).

159 This is the case in particular for crops and wood used for biofuels. For an elaboration, see Giljam (n 116). A legislative proposal was recently adopted to remedy this situation, but it remains to be seen whether this will eventually be implemented or not (see European Commission, 'Commission Proposes New Rules for Consumer Centred Clean Energy Transition' (November 2016) http://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition) accessed 22 May 2017.

160 Energy efficiency measures can be regarded as processes, but the energy thus saved is neither a product nor a process.

161 Bradbrook (n 141) 194–95.

162 Thomas Cottier, 'Renewable Energy and Process and Production Methods' (E15Initiative, ICTDS and World Economic Forum 2015) 1 http://e15initiative.org/publications/renewable-energy-and-process-and-production-methods accessed 22 May 2017.

163 Cottier and others, 'Energy in WTO Law and Policy' (n 133) 11.

164 The latter is argued by Cottier and others, 'Energy in WTO Law and Policy' (n 133) 10.

165 Holzer (n 18) 94.

determination'[166] and Vranes states "that there is no uniform 'product-process doctrine'", but that instead it consists of several shades.[167] Furthermore, he argues that it is difficult to sustain that the process-product distinction is required.[168] Trebilcock, Howse and Eliason argue that energy *is* a process, and that its physical nature 'is such that any distinction between "process" and "product" would be scientifically meaningless'.[169] Others are less bold, but still acknowledge that in specific cases a production method can define a product[170] and that, at least, the assertion that a production method is 'non-product related' (npr) is too strong.[171]

Furthermore, regarding electricity, Cottier and others argue that '[t]he fundamental divide between goods and services does not offer an appropriate basis for addressing and regulating energy'.[172] Yet others argue that, although grey and green electricity are physically indistinguishable and therefore like, decarbonisation of society requires full recognition of npr-PPMs in order to incentivise change in (energy) production processes.[173] The perception that the process (partially) defines the product cannot only be found in literature, but is also reflected in consumers' preferences. The public perception that grey and green electricity are two different products is an element in determining likeness under the GATT,[174] and thus provides an indication that these products are perhaps not like.[175] Similar considerations have been expressed by the AB in the *Canada – Renewable Energy* case, where it considered the two types of energy to be quite distinct.[176] Thus, it can be concluded that the current divides are mere artificial legal constructs, and it is at times impossible to discern between a process and a product or a good and a service, especially when considering energy. Reassessing the classification and categorisation of energy will also have a profound impact on the definition of likeness[177] and the related 'traces debate' fought so fiercely under the umbrella of the

166 Leal-Arcas, Filis and Abu Gosh (n 101) 111.
167 Vranes (n 19) 321–22.
168 Vranes (n 19) 350.
169 Howse and Eliason (n 132) 80, reaffirmed in: Trebilcock, Howse and Eliason (n 38) 691.
170 Leal-Arcas, Filis and Abu Gosh (n 101) 419; Robert Howse and Alexey Vikhlyaev, 'World Trade Law and Renewable Energy: The Case of Non-Tariff Barriers' (United Nations Conference on Trade and Development UNCTAD/DITC/TED/2008/5, United Nations 2009) 3 http://unctad.org/en/Docs/ditcted20085_en.pdf accessed 22 May 2017.
171 Charnovitz (n 19) 66.
172 Cottier and others, 'Energy in WTO Law and Policy' (n 133) 7. These authors further state that the current rigid division between industrial and agricultural products can make matters more complicated (*ibid*, 7) and that the definition of electricity should be reviewed (*ibid*, 9).
173 Cottier (n 162) 5.
174 The importance of consumer preferences is also stipulated by Holzer (n 18) 110–11. At the same time, she argues that it is good to be aware that perceptions are subjective and hence hard to measure and interpret (*ibid*, 113).
175 See also Kati Kulovesi, 'Climate Change and Trade: At the Intersection of Two International Legal Regimes' in Erkki Hollo, Kati Kulovesi and Michael Mehling (eds), *Climate Change and the Law*, Ius Gentium – Comparative Perspectives on Law and Justice vol 21 (Springer 2013) 432. Here it needs to be reiterated that the fact that the two types of electricity are also competitive 'products' is an indication that perhaps they are like (Lester and Mercurio (n 22) 308; *EC – Asbestos* (n 45) para 99.
176 WTO, *Canada – Certain Measures Affecting the Renewable Energy Generation Sector; Canada – Measures relating to the Feed-In Tariff Program* (AB-2013-1) *Reports of the Appellate Body* (6 May 2013) WT/DS412/AB/R and WT/DS426/AB/R (*Canada – Renewable Energy)*, para 5.174, and reiterated in Leal-Arcas, Filis and Abu Gosh (n 101) 419.
177 Leal-Arcas, Filis and Abu Gosh (n 101) 135.

WTO, since these would also have to be reconsidered to ensure consistent and coherent application of the legal framework.

An additional argument to abandon the current rigid classifications is to bring the legal terminology more in line with the factual situation. No matter what one's view is on the (un)likeness of different electricity types, it is a fact that EU law imposes differentiated treatment of electricity purely on the basis of raw materials used in production, as a preferential access regime applies to green electricity.[178] Similarly, differential treatment is accorded to biofuels, based on both the origin of the raw materials and the CO_2 emissions reduction that is achieved overall.[179] In fact, the sustainability criteria on biofuels also could have been formulated as import restrictions, rather than mere thresholds for calculations and subsidies. In their current form, the criteria stay 'well below the ceiling set by WTO law'.[180] Some argue that differential treatment in terms of taxation is unlikely to be incompatible with WTO law as long as it concerns fossil fuels used for energy production *vis-à-vis* renewable sources, since the two are physically very different. On top of this, differentiated tariff rates for renewables also seem acceptable if the applied rate is the same for all members.[181]

Essentially, the EU provisions on electricity as well as on biofuels are outright npr-PPM measures, which shows that process measures are not as controversial as is often assumed. However, they are used only sparsely rather than categorically. This is odd, since it is rather inconsistent to allow differentiation for one or two types of energy, but not for others. Even though green electricity is given differential legal treatment from grey electricity, this does not occur with any other type of energy. For instance, conventional and unconventional hydrocarbons are treated as if they are like products, despite their diverging production processes and environmental impacts. An indication that the two might be unlike can be found in the fact that currently a Hydrocarbons BREF is being prepared, which was not deemed necessary when only conventional hydrocarbons were (technically) available. Moreover, this BREF is non-binding and completely unattached from the IED framework, which is rather unusual and indicates that unconventional fuels are indeed perceived to be different from regular hydrocarbons. In addition to a lack of general application of differential treatment, there are also no further subdivisions regarding electricity, such as differential treatment between electricity from gas and electricity from lignite. In fact, some authors claim that any further subdivisions (eg, coal versus oil) would be problematic under WTO law.[182] In the author's opinion, this is not the case. First of all, the broad category 'fossil fuels' is not a uniform group of products. In fact, coal and oil have very different physical characteristics. In addition, the conversion processes used also differ greatly, as do the environmental impacts stemming from this production. Treating these situations as if they were identical would therefore amount to 'reverse discrimination',

178 RED (n 15) Art 16.
179 RED (n 15) Art 17.
180 Andrea Schmeichel, *Towards Sustainability of Biomass Importation – An Assessment of the EU Renewable Energy Directive* (Europa Law 2014) 264. A dissenting opinion is held by Mitchell and Tran, see Leal-Arcas, Filis and Abu Gosh (n 101) 472–73.
181 Trebilcock, Howse and Eliason (n 38) 692–93.
182 Trebilcock, Howse and Eliason (n 38) 692.

that is, treating different situations alike.[183] Such an application seems inconsistent compared to how renewable sources and production processes are regarded and dealt with. All in all, the categorisations and differentiations currently used are thus rather haphazard and inconsistent. This ambiguity cannot be resolved by merely saying that for certain electricity types 'the process is the product', while denying this definition for other types of electricity. It is not tenable to maintain that differentiation is only relevant for electricity and not for other forms of energy, nor that such differentiation would only be justified to the extent that it concerns renewable versus fossil-based electricity. Taken a step further, it is even harder to argue that a ground for differentiation would only exist for energy products and not for a broader spectrum of goods.

Such a broader new approach would not have to conflict with trade law. Trade law principally aims to promote trade and ban protectionist measures and discriminatory practices, but it does not necessarily prohibit genuine, justifiable trade restrictive policy measures. The legality of such measures depends largely on the details of the legal design, as well as the circumstances surrounding their adoption. If a country has a legitimate interest in addressing a specific (transboundary) practice and can demonstrate its commitment via a history of attempts to achieve change through less restrictive means,[184] and if it imposes identical restrictions on domestic goods, the measures under scrutiny have a good chance of passing the test under WTO law. Furthermore, a crucial design element in strict, holistic BAT-production criteria imposed on energy products is that this type of legislation does not 'force a member to adopt essentially the same policies',[185] but leaves multiple production techniques open as an option. Also, other countries are still free to use non-BAT production processes, only they will not be able to export those products to WTO members that enforce strict BAT. Thus, such measures are either no violation of WTO law, or they can be justified via the general exceptions. Carbon emission reductions are crucial in averting climate change, so that without strict measures, human (as well as animal and plant) life and health are threatened, the protection of which is 'among the most pressing or fundamental interests protected under article XX'.[186] Moreover, WTO law is ultimately limited in its scope and its members maintain a 'right to regulate', in order to pursue legitimate goals as long as they do so in an 'even-handed, non-discriminatory manner, avoiding where possible harmful effects on trade'.[187]

5. Conclusions

In brief, this article has shown that,

> process-based measures… are not contrary to the principle of territoriality in international law… However… there are a number of other grounds on which one may

183 This argument is derived from analogously applying WTO jurisprudence on the need to take account of diverging conditions in different countries (see also Van den Bossche and Zdouc (n 37) 575).

184 More elaborately, Robert Howse and Joanna Langille, 'Permitting Pluralism: The Seal Products Dispute and Why the WTO Should Accept Trade Restrictions Justified by Non-instrumental Moral Values' (2012) 37 Yale Journal of International Law 367, 373 and 384 in particular.

185 *US – Shrimp* (n 77) para 161 et seq.

186 Howse and Langille (n 184) 420.

187 Howse and Langille (n 184) 428.

> object to process-based measures… These range from perceived economic coercion, objections against paternalistic use of trade measures, to a call for tolerance and diversity among Member States. Nonetheless,… there are also many good reasons for Member States to enact process-based measures based on a strong nexus between the interest protected and the territory or the people on the territory of the regulating Member State… [and] much depends on how justifications and derogations are framed.[188]

Thus, essentially the acceptability and legality of process measures hinge upon their detailed institutional design as well as on their effective manner of application.[189] Preferably, such measures should be framed as 'how-produced' standards that directly target the undesirable production practice. In doing so, the standard should be as flexible as possible and target performance rather than design of products.[190] The concept of BAT allows for such flexibility and is already commonplace in EU law, so that it potentially provides a suitable means to implement comprehensive climate change policies. The legal analysis in this article has also shown that strict BAT requirements would in principle not violate WTO law or EU law.[191]

Nonetheless, implementing such a BAT-based regime will in practice not be easy. At least three important hurdles must be overcome to arrive at a comprehensive framework. The first is to generate sufficient political will and consensus to implement significant changes at several levels of governance.[192] Secondly, complications may arise from difficulties in verifying compliance with the BAT requirements.[193] Lastly, in designing the system, the risk of *de facto* discrimination must be addressed, which could be caused by disparate effects on developing countries that wish to export their products to the EU. For them, strict BAT might lead to disproportionately increased costs for production or significantly reduced income from exports, as a result of which the incentive to improve production processes can in fact 'come very close to *de facto* enforcement of production rules abroad'.[194] Hence, a balance must be struck between the protection of 'foreigners' and regulatory autonomy.[195] Simultaneously, if the envisaged strict BAT would be deemed illegal, the EU would *de facto* be forced to accept a larger degree of environmental degradation, corresponding emissions and subsequent climate impacts. Thus, '[a] territorial limitation could therefore potentially indicate an inherent bias of market liberalization over social and environmental interests'.[196]

Perhaps a compromise can be found to mitigate the BAT's potential for excessive coercive effects. Several authors have put forward solutions to the bifurcated approach to trade and climate policies. For instance, multiple authors suggest that disproportionately affected countries could be granted a form of aid, either financially or in terms of technological transfer, in order to bring their production processes in line with the

188 Ankersmit, 'Globalization' (n 17) 150–51.
189 See also Kulovesi (n 67) 81.
190 Charnovitz (n 19) 107.
191 The former is affirmed in Howse and Eliason (n 132) 92.
192 As also stipulated by Woolley (n 5) 58; and Higgins (n 9) xiv.
193 See also Holzer (n 18) 224–25.
194 Ankersmit, 'Globalization' (n 17) 152.
195 Matsushita and others (n 19) 185–86.
196 Ankersmit, *Green Trade* (n 17) 128.

tightened import requirements.[197] Additionally, a 'phase-in period' could be observed to allow developing countries to adjust their production processes.[198] Others recommend creating stronger links between the WTO and United Nations mechanisms and obligations, such as the Clean Development Mechanism (CDM).[199] Further recommendations are amendment or reinterpretation of the WTO treaties to facilitate climate change policies[200] or to waive specific WTO obligations in the pursuit of climate change objectives.[201] Also, environmental law and policies can be considered more thoroughly in the interpretation of WTO provisions and within WTO dispute settlement.[202] These are just some (non-exclusive) examples to show that several options are available to resolve the current tension between climate change policies and the trade framework.[203] However, an extensive appraisal of (the feasibility of) these options is outside the remit of this article. No matter which route is chosen, and no matter how hard it will be to achieve it politically, it is vital that a means is found to reconcile the two, as it is becoming increasingly evident that business as usual is not an option.[204]

Therefore, in the author's opinion, implementing process measures on a large scale is a necessity for a society that wants to move to a more sustainable future. It is a practical solution to resolve the fallacious, black-and-white legal distinction between products and processes. Such categorisation is in principle a useful legal tool to compartmentalise, and thus to structure society in order to provide clarity and predictability. However, if such categorisation hinders the transition to a low-carbon economy and obstructs moving towards ecological governance, it forfeits its purpose. Energy regulation requires an integrated approach[205] and through the adoption of holistic, ecological BAT requirements much of the current divide could be resolved. As it is, the current examples of differential treatment of energy products have a legal basis in law,[206] but the rules lack a coherent

197 Charnovitz (n 19) 109. The need for proliferation of (clean) energy technologies is also stipulated in *inter alia* Lea Nicita (n 13) 37–38; Thomas Cottier and Nashina Shariff, 'International Trade and Climate Change' in Geert Van Calster and Denise Prévost (eds), *Research Handbook on Environment, Health and the WTO* (Edward Elgar 2013) 433.

198 Holzer suggests that such a transition period should be at least ten years, albeit her argument concerns the introduction of a carbon tax (Holzer (n 18) 238). Also, it could be sensible to implement stricter BAT in two phases. A first transition period could then apply to the current BAT being enforced at EU borders, while a second one would relate to more stringent BAT being adopted and subsequently being 'externally' enforced (on the latter, see also Giljam (n 12)).

199 See for instance Cottier (n 162) 5.

200 Holzer (n 18) 250–55.

201 Isabel Feichtner, *The Law and Politics of WTO Waivers: Stability and Flexibility in Public International Law* (CUP 2014).

202 See also Trebilcock, Howse and Eliason (n 38) 675.

203 Several other paths for reconciling the two are explored in: Amelia Porges and Thomas L Brewer, 'Climate Change and a Renewable Energy Scale-up: Responding to Challenges Posed to the WTO' (E15Initiative, ICTDS and World Economic Forum 2014) http://e15initiative.org/wp-content/uploads/2014/12/E15_CleanEnergy_Porges-and-Brewer_FINAL.pdf accessed 22 May 2017.

204 The world is in fact 'heading towards unchartered territory at "frightening speed"', according to *The Independent* (Steve Connor, 'Global Warming: World Already Halfway towards Threshold that Could Result in Dangerous Climate Change, Say Scientists' *The Independent* (9 November 2015) www.independent.co.uk/environment/climate-change/climate-change-global-average-temperatures-break-through-1c-increase-on-pre-industrial-levels-for-a6727361.html) accessed 22 May 2017, as affirmed by the WMO (n 71) and the United Nations (n 2).

205 Cottier and others, 'Energy in WTO Law and Policy' (n 133) 8.

206 RED (n 15) Arts 16 and 17.

framework underlying the distinctions made. Legal certainty would benefit from a clear, coherent, comprehensive legal framework containing objective criteria for differentiations. The extensive use of BAT could provide just that: clarity coupled with flexibility. The EU provides an ideal platform to (further) develop this mechanism, as it would present flexible solutions based on mutual agreement in an international setting. Furthermore, the EU is already acquainted with the concept and its courts are unlikely to take a principled stance against process-based measures. In fact, such opposition would be 'contrary to the EU's own interests and ambitions which are not solely aimed at trade liberalization'.[207] By additionally upholding BAT requirements at its external borders, the EU could alleviate the risk of 'exporting ecological impacts',[208] that is, avoid production shifting to countries with lower standards. In principle, there seem to be no significant legal objections to wielding a broader application of a more holistic BAT concept, as long as it is applied consistently and in a non-discriminatory manner, to domestic and foreign products alike, while allowing a transitional/phase-out period for those techniques and installations that will no longer be considered BAT.[209]

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207 Ankersmit, *Green Trade* (n 17) 193.

208 From: Annalisa Savaresi, 'EU External Action on Forests: FLEGT and the Development of International Law' in Elisa Morgera (ed), *The External Environmental Policy of the European Union: EU and International Law Perspectives* (CUP 2012) 154.

209 The length of this transitional phase should be affected *inter alia* by security of supply considerations.