

The Kyoto Mechanisms

Linking Technology to Ratification

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I. INTRODUCTION

The possibility of generating emission credits under one of the project-based Kyoto mechanisms may well have the effect of pushing marginal projects into the realm of economic viability. American Electric Power (AEP)—the largest private US electricity utility—at any rate sees huge market opportunities opening up for building “clean coal” power plants in China, provided the price gap between AEP plants and the existing higher emitting plants can be bridged by the sale of “Certified Emission Reductions” (CERs) generated by the new plants under the Clean Development Mechanism.¹

A. THE AEP-SCENARIO

In order to carry out these projects, AEP must buy suitable turbines, generators and so forth. For illustrative purposes let us hypothetically assume that AEP has narrowed down its choice to two brands of turbines—one manufactured by General Electric in the US and one by Alstom in Switzerland²—and that the economic viability of the projects in either case depends on the income generated through CERs. Assume furthermore that the Kyoto Protocol has come into force with US ratification, but without the Swiss. Economic theory would seem to suggest that Alstom’s Swiss production arm—formerly known as Brown Boveri—might well derive a competitive advantage over GE’s American production from this situation. Energy costs in the US would probably increase due to Kyoto implementation measures, while the Swiss economy would be able to profit from cheaper oil imports. Indeed, this Kyoto free-riding advantage could well tip the balance at AEP in Alstom’s favour. In this case GE workers—potentially facing redundancy—would be justified in feeling hard done by

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¹ “Somebody has got to pay that premium to make these kinds of deals work”, said Dale E. Heydlauff, AEP senior vice president for environmental affairs, in an interview. “It’s a small price to pay, but it will make a big difference in China’s pollution levels and the impact on global warming. And that’s just one example why these negotiations matter so much to American business and the fate of the world.” *Washington Post*, 24 November 2000.

² Note that these firms have only been chosen for narrative’s sake. Their identity is quite immaterial to the issues that are illustrated by the scenario, as is the choice of the countries mentioned.

what they might rightly think of as “climate profiteering”. After all, it is hard to see how one could justify as fair not only their losing out to someone who *refuses* to share the Kyoto burden, but the very deal they lost out on being only possible because they themselves are sharing it.

B. THE TECHNOLOGY-RATIFICATION (TR) LINKAGE

This article is about the feasibility of tailoring the project-based flexibility instruments envisaged in the Kyoto Protocol—Joint Implementation (JI) and the Clean Development Mechanism (CDM)—to put an end to such profiteering. More precisely, it focuses on a particular adaptation which suggests itself quite naturally in our AEP-Scenario, namely the condition that emission reductions will only be certified if their “technical means of production”—the (main) components of the proposed power plants in the example—are manufactured in countries which have ratified the Protocol. There is little doubt that such a linkage would tip the balance back in GE’s favour in our hypothetical scenario. Given its assumptions, Switzerland’s non-ratification would entail the non-viability of AEP’s Chinese projects if opting for the Alstom alternative, as they would not earn certified credits under the proposed TR-linkage.

Is such a linkage realistically feasible, that is, could it be effectively operationalized and would it actually be compatible with the existing body of international law as embodied, in particular, in the World Trade Organization (WTO)? I shall argue that this is indeed the case. On a more general level, the linkage suggested here also serves to exemplify a MEA (Multilateral Environmental Agreement) mechanism which could well achieve some of the objectives of the more traditional MEA trade measures—namely:

- To prevent free-riding (where non-participants enjoy the advantages of the MEA without incurring its costs) by encouraging governments to join and/or comply with the MEA.
- To increase the coverage of the agreement’s provision by encouraging governments to join and/or comply with the MEA.³

—but without the potential for conflict with the WTO. This is a feature that may be of interest beyond the confines of the climate change regime to MEAs in general.

II. OPERATIONALIZING THE LINKAGE

To explicate the proposed linkage of technology to ratification, some terminological clarifications may be required.

A. TECHNOLOGY

The term technology can be used to refer to types of technology (with ownership given by way of patents), or to pieces of technology, with the usual property rights for

³ Duncan Brack *et al.*, *International Trade and Climate Change Policies*, RIIA and Earthscan, London, 2000, 17f.

material objects. In the project based Kyoto mechanisms, it will of course be the latter—pieces of technology such as turbines—which generate the desired credits. Consequently it seems sensible to interpret the envisaged technology-ratification link as referring to pieces of technology/machinery (keeping in mind that such pieces may themselves be subject to “intellectual property ties”).

B. OWNERSHIP OR ORIGIN

The next question concerns the manner in which the technology pieces involved could be tied to the process of ratification. Ratification is a matter for the legislative branch of national governments. The envisaged linkage thus has to be articulated in terms of a tie to particular countries. There are a variety of such ties, some of which are more relevant to the proposed aim of fighting climate profiteering. For example, the fact that a curdled milk-based substance is often traded under the name of “Swiss cheese” could be construed as establishing a tie with Switzerland, but its existence does not imply Switzerland benefiting materially from these sales (if anything, the opposite may be true).

More direct links with national profits are those established in terms of ownership and of origin of the machinery in question. Both the “country of ownership” as well as the “country of origin” may profit from the sale of a piece of technology, and the two need not necessarily be the same. A firm may produce a piece in country *A*, yet itself be domiciled in country *B*. Assuming that production entails ownership and the locus of production is identified as the product origin (see below), the piece has *A* as its country of origin, while *B* would be its country of ownership. An important difference between the two notions lies in the manner in which the respective economies might profit from the sale of the piece. The source of the profit derived by country *B* from the sale in the above example is in a first instance financial, namely if the firm decides to “patriate” the profits from the sale. The profits of the country of origin *A*, by contrast, are going to be primarily tied to jobs in the manufacturing process.

Either type of profit would be excessive—in the “profiteering” sense—if the country in question is not a full party to the Protocol, and should hence be stopped by the envisaged linkage if it is to achieve its aim. The language of such a linkage should therefore refer to the ownership as well as the origin of the machinery involved. The well-known US “Iran and Libya Sanctions Act of 1996” (see Box 1) could well serve as an example of how this linkage might be expressed in terms of ownership, i.e. in terms of firms (“people”) engaged in selling the pieces of technology in question.⁴ While this type of linkage by way of ownership may prove to be less difficult to monitor than a linkage in terms of origins, I believe the latter to be potentially more

⁴ Note that ILSA explicitly distinguishes “persons” as to whether they are “foreign” or not: “The term ‘foreign person’ means—(A) an individual who is not a United States person or an alien lawfully admitted for permanent residence into the United States; or (B) a corporation, partnership, or other non-governmental entity which is not a United States person.” [Sec.14]

effective in creating incentives for ratification (particularly for the main players and/or culprits).⁵

C. ORIGINS

But is it not impossible nowadays to talk of the “origin” of manufactured goods? To say that in the global economy, many products will not be wholly manufactured in one single country is obviously quite platitudinous. Yet this does not mean that we have to give up the concept of “origin” altogether, at least not according to the WTO, which after all contains a 13-page *Agreement on Rules of Origin*. Indeed, in Article 3 (“Disciplines after the Transition Period”), the agreement states explicitly that “the country to be determined as the origin of a particular good is either the country where the good has been wholly obtained or, when more than one country is concerned in the production of the good, the country where the last substantial transformation has been carried out”. Assuming that the WTO would not devote an agreement to a concept that cannot be operationalized, the envisaged TR-linkage might thus be given the following specification:

“(TRL) International emission credits are valid only if the generating technology pieces have their origins in countries that have ratified the Kyoto Protocol.”

The phrase “their origins” in this context is intentionally ambiguous. It could refer to “the origin” of a piece of technology (in the WTO sense), or it could be interpreted as referring to its origin and that of all its major components.⁶ The latter interpretation would undoubtedly help to “spread” the intended salutary effect of the linkage (and help to prevent avoidance through relocation of final assembly). Keeping in mind potential intellectual property rights, the linkage might be further strengthened by requiring that when pieces/constituents have been manufactured under licence, then the domiciles of the patent holders must also have ratified. The choice will ultimately be political, weighing the strength of the linkage against factors such as the practicalities and transaction costs to administer it.

III. CDM TRANSACTIONS

Indeed, one argument that is bound to be made against the introduction of such a TR-linkage is that its administration would be so cumbersome and costly as to kill any project-based Kyoto mechanism activities. To illustrate that this need not be the case at

⁵ All of the countries that under the Kyoto Protocol would be taking on mitigation burdens are parliamentary democracies with elected bodies in charge of ratification. It stands to reason that the best way of creating incentives for this type of body is through grass-roots voting pressures. Potential local jobs losses through the threat of relocation or closure of production facilities may well be as strong a motive for mobilizing such pressures as could be achieved in the present context. And such a threat is likely to materialize most overtly if the envisaged TR-linkage is carried out in terms of technology origins.

⁶ Those concerned about whether or not this term can be given a sufficiently specific meaning I refer to section 11A(e)(1) of the US Export Administration Act 1979 (50 U.S.C. App. 2410a(e)(1)).

all, consider the (likely) administrative CDM transactions, say, again in the context of our hypothetical AEP-Scenario. Apart from having to obtain the consent of the Chinese and American authorities to register the proposed power plants as CDM projects, AEP will have to have the projects validated by a “Designated Operational Entity”, i.e. they will have to be checked to establish whether or not they fulfil the requirements concerning baselines, additionality etc. adopted by the CDM governing body. It is not as yet clear who is going to carry out these validations, but in principle, it could be by any institution ranging from intergovernmental organizations to private enterprise. In the course of their lifetime, the projects will have their status periodically reviewed and ultimately verified before they can apply to be certified and issued with Certified Emission Reductions by the Executive Board of the CDM. Given all of these activities, it should be clear that there would be no need to introduce any additional infrastructure for verifying the suggested TR-linkage. This verification, without doubt, would have its natural home with the Designated Operational Entities in charge of validating projects. And since it would simply involve checking some certificates of origin, it is unlikely to incur large additional transaction costs.

The CDM Governance Structure

The following characterization is based on the Addendum (FCCC/SBSTA/2000/10/Add. 1 Part II) to the Report of the Subsidiary Body for Scientific and Technological Advice (SBSTA) on the work of its Thirteenth Session (Part One) in Lyon, September 2000. The text itself is still littered with brackets that should have been removed during the conference at The Hague. Unfortunately, this work was not completed, but there seems to be consensus about the following basic features of the CDM architecture.

- Once the Kyoto Protocol is in force, the ultimate authority over the Clean Development Mechanism (CDM) is the governing body of the Kyoto Protocol, rather inelegantly termed “*Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol*” (COP/MOP), constituted by the Parties who have ratified the Protocol. The governing body of the UN Framework Convention on Climate Change—the Conference of the Parties (COP)—assumes responsibility until the first session of the COP/MOP.
- The COP/MOP will nominate an Executive Board that supervises the day-to-day operation of the CDM as carried out by Designated Operational Entities. The executive Board will *issue* the Certified Emission Reductions (CERs) in accordance with the provisions established by the COP/MOP, which it will be responsible to.
- Designated Operational Entities will—under the supervision of the Executive Board—carry out a host of operational activities, such as validation, verification, and certification of project emission savings.

- Validation is an independent project evaluation prerequisite for a project to be registered under the CDM. Verification is the periodic review and the *ex post* determination of the monitored emission savings. Certification is the written assurance that, during a specific time-period, a project activity achieved its anthropogenic emission savings and other necessary performance indicators, as verified.
- The COP/MOP carries ultimate responsibility for the procedures of the CDM. It determines, in particular, the nature and extent of the supervisory role of the executive board including in relation to initial or final determinations of whether a project is actually resulting in claimed CERs. It is to exercise its authority over and provide guidance to the Executive Board regarding the implementation of the decisions of the COP/MOP that establish the guidelines on issues such as, project eligibility, criteria for additionality, methodologies for determining baselines, guidelines for monitoring, verification, certification, accreditation and reporting; and the reporting format.

IV. THE WORLD TRADE ORGANIZATION: A SKETCH OF PURPOSE AND SCOPE

The purpose of the WTO is essentially to protect its Members from economically motivated trade-barriers introduced by co-members. Thus, the Preamble of the WTO Treaty states that the Parties (the WTO Members) are desirous to enter “into reciprocal and mutually advantageous arrangements directed to the substantial reduction of tariffs and other barriers to trade and to the elimination of discriminatory treatment in international trade relations”.

The WTO’s core principles are the “most favoured nation treatment” and the “national treatment” (as expressed, among others, in Articles I and III of the GATT):

- (i) Members are not normally allowed to discriminate in trade between Members;
- (ii) “imported and locally produced goods should be treated equally—at least after the foreign goods have entered the market”.⁷

The membership is Nation-States (currently 138) and the EU as an entity, with the type of regulatory and legal powers associated with government market intervention.⁸ The trade restrictions under the remit of the WTO are government trade measures (between its Members), the defining characteristics of which are active interventions at government level. Not all changes in international trade patterns fall in this category. If the consumers of a country *A*—in absence of any government (legislative, regulatory or fiscal) intervention—decide to boycott the beef of country *B*,

⁷ “About the WTO”: <www.wto.org>.

⁸ To simplify the terminology, I shall include the European Commission under the heading of “government” for the present purposes.

then *B* may feel aggrieved and discriminated against, but it is not the type of trade discrimination that can be taken before the Dispute Settlement Body of the WTO.

The ultimate enforcement instrument available to the WTO is, in a sense, a (partial) suspension of membership, i.e. a partial withdrawal of the protection against discriminatory treatment by (certain) other Members. Such a penalty, naturally, would not cut any ice with non-members.

In short, the WTO is an organization with “jurisdiction” purely over certain specific trade related activities by the governments of its Members. Non-members—be they national governments, international organizations, or private parties—cannot be held responsible for contravening WTO rules. In particular, trade activities which are not authored by national governments fall outside the scope of the WTO, even if perceived as discriminatory by some of its Members.

V. WTO RULES AND PROCEDURES GOVERNING THE SETTLEMENT OF DISPUTES

In Article 1 (“Coverage and Application”) of the second Annex to the WTO Treaty, the Parties to the treaty (“Members of the WTO”) agree that “the rules and procedures of this Understanding shall apply to disputes brought pursuant to the consultation and dispute settlement provisions of the agreements listed in Appendix 1 to this Understanding (referred to in this Understanding as the ‘covered agreements’). The rules and procedures of this Understanding shall also apply to consultations and the settlement of disputes between Members concerning their rights and obligations under the provisions of the Agreement Establishing the World Trade Organization (referred to in this Understanding as the ‘WTO Agreement’) and of this Understanding taken in isolation or in combination with any other covered agreement.

- “The Members recognize that it serves to preserve the rights and obligations of Members under the covered agreements, and to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law.” [Article 3 (General Provisions)]
- “The prompt settlement of situations in which a Member considers that any *benefits accruing* to it directly or indirectly under the covered agreements are being impaired *by measures taken by another Member* is essential to the effective functioning of the WTO and the maintenance of a proper balance between the rights and obligations of Members.” [Article 3 (General Provisions), WTO Annex 2, emphasis added]

Disputes, under the WTO, can only be brought forward by WTO Members against WTO Members. This becomes clear considering that the ultimate sanction under the WTO is an act which non-members clearly would not find particularly threatening:

- “any party having invoked the dispute settlement procedures may request

authorization from the DSB [Dispute Settlement Body] to suspend the application to the Member concerned of concessions or other obligations under the covered agreements.” [Article 22.2]

VI. GOVERNMENT TRADE MEASURES *VERSUS* TR-LINKAGE

The reason for emphasizing the connection between WTO “jurisdiction” and the national authorship of trade measures is the complete lack of the latter in the trade pattern under the proposed TR-linkage.⁹ The discriminating decisions are, on the one hand, taken at the subnational level of the firm (American Electric Power, in our hypothetical scenario), and at the supranational level of the CDM governing body, on the other. The national decision-making level is not directly involved—in stark contrast to trade measures which have traditionally been used, say, under the Convention on International Trade in Endangered Species (CITES), where the governing body issues recommendation for CITES members to act and adopt legislation/regulations to impose the measures.

Of course, international treaties do not usually fall from heaven. They are agreements between sovereign states that therefore cannot deny some involvement in the process that would lead to the discrimination of Swiss turbines in the AEP-scenario. Indeed, Alstom-Switzerland might well try and convince the Swiss government to initiate WTO dispute settlement proceedings on grounds of this indirect involvement in the course of adopting the multilateral treaty in question. This, however, is where the situation’s practicalities would come into play: of all the actors (direct or indirect) involved in the transactions described in the hypothetical scenario above, only members of the CDM governing body (COP/MOP)—the ratifiers of the Kyoto Protocol—could possibly be brought before the WTO. Given that this grouping will have minimally 55 members, including at least two out of the three biggest economies (EU, USA, Japan) the Swiss government—and indeed any other country—would be rather audacious to bring charges against these countries, in particular in view of the rather flimsy “indirect action” argument.

To sum up the main points, the intended discrimination under the TR-linkage is carried out under the authority of a supranational “market regulator” (COP/MOP) who is subject as little to WTO rulings as are “subnational” market participants (i.e. firms or individual consumers).

⁹ As Jacob Werksman pointed out (personal communication), the host country (China) may find itself not as immune as the Party purveying the technology (the USA) depending on what role it is meant to play in the governance structure of the CDM, but it is not impossible to shield host countries against such direct discriminatory involvement in the design of the CDM. It is important that this issue be carefully considered, because host countries may otherwise become liable to WTO infringement due to their involvement in CDM projects quite generally and in the absence of the linkage proposed in this paper.

VII. WOULD A TR-LINKAGE ACHIEVE ITS AIM?

The GATT encourages so-called “positive incentives”—as opposed to “negative” incentives such as traditional trade measures—for countries to participate in an international agreement:

“When co-operation is not voluntarily forthcoming, positive incentives are the best way to achieve sustained inter-governmental co-operation. Positive incentives can include offers of financial assistance and transfers of environmentally friendly technology directly related to the problem at hand, as well as more broadly based offers, for example, to increase foreign aid, to lessen debt problems and to make non-discriminatory reductions in trade-barriers.”¹⁰

These “positive” incentives are of interest, if only because they suggest that they be really meant to encourage co-operation with the poorer and poorest countries. Granted that this may not have been intended as an exhaustive list, one could nonetheless be forgiven to conclude that if the co-operation of an industrialized country is not voluntarily forthcoming, it may have to contemplate more “negative” incentives.

The aim of putting a stop to forms of free-riding and of encouraging the culprits to reform is, as mentioned above, by no means novel in the context of MEA enforcement mechanisms. What may be more original in the ideas put forward here is that the (market) incentive structures traditionally used to achieve this aim can be brought into play without having to resort to government trade measures.

The traditional application of trade measures, as it happens, has been remarkably successful in achieving its aim—particularly in the case of the Montreal Protocol and of CITES. And yet it would be somewhat naïve to think that this success rate would automatically apply to the use of a TR-linkage under the Kyoto Protocol.

While there can be little doubt that a TR-linkage would put a stop to the profiteering and provide some incentive for ratification, the question remains whether this incentive is sufficiently strong to outweigh potential negative ancillary effects? If it were possible to conclude that the introduction of the linkage would constitute “the final straw” in bringing the main parties to ratify the Protocol, then one would have a very strong case in making the overall desirability of such a linkage a rebuttable presumption.

Unfortunately, the successful use of trade measures in bringing about ratifications of some existing MEAs cannot, as mentioned above, necessarily be used as analogy to the proposed use of TR-links in the context of the Kyoto Protocol. Why not? For one, the costs associated with ratifying the Kyoto Protocol are far larger than those involved in ratifying these existing MEAs. Having said this, the capital value of the technology involved under the Kyoto mechanisms can also be expected to be far larger than the value of the trade lost under MEA trade sanctions in question.¹¹ Preferring to

¹⁰ GATT, *International Trade 90–91*, Geneva, 1992.

¹¹ In a personal communication, Christiaan Vrolijk of the Royal Institute of International Affairs put the capital value of CDM technology during the first commitment period (2008–12) in the range of 50 billion to 200 billion annually (decreasing over the time horizon).

err on the side of caution, my assessment is that while it is likely that a TR-linkage would provide a significant incentive for ratification in countries that could anticipate a significant share in this technology market, it is not likely that it would be sufficient to bring ratification about on its own. But then that might be expecting too much of a single instrument given the nature of the issues at stake.