Linking the Tōkyō Emissions Trading Scheme

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I. Introduction

Under the *Kyōto Protocol*[1] developed countries collectively committed to reduce greenhouse gas emissions by at least 5% below 1990 levels during 2008 to 2012. A core element of the Protocol was that a price should be set on greenhouse gas emissions.

National emissions trading schemes ("ETSs") are a prime mechanism to achieve this price. These ETSs might ultimately be linked thereby establishing a global market. A number of jurisdictions have now implemented ETSs. For example, the European Union ("EU") implemented an ETS in 2005, New Zealand in 2008, the Tōkyō Metropolitan Government ("TMG") in 2010 and California and Quebec as of 2013.

With the gradual introduction of these national and sub-national ETSs the possibility of linkages emerges.[2] However, to date no regimes have been linked across borders, although there is considerable literature about how, in the abstract, this might be achieved. It is proposed in this paper to examine these principles in the context of an existing ETS – the TMG ETS. Whether this regime is amenable to linking is especially significant given that it is being promoted as a blueprint for other sub-national jurisdictions.[3]

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1 Protocol to the United Nations Framework Convention on Climate Change, available at *www.unfccc.int.*

2 TMG is a member of the International Carbon Action Partnership ("ICAP"). ICAP is an open forum comprised of public authorities and governments that have established or are actively pursuing carbon markets through mandatory cap and trade systems with absolute caps. It provides a forum to share experiences and knowledge especially with a view to facilitating future linkages. Japan is an observer. See *http://www.icapcarbonaction.com/*.

3 Environmental Defense Fund/International Emissions Trading Association, Tōkyō. The World's carbon markets: a case study guide to emissions trading, September

It is first proposed to discuss in more detail the concept of linkage and its perceived advantages and disadvantages. The features of the TMG ETS will then be outlined followed by an overview of the principles derived from the literature on linkage. Finally, the TMG regime will be assessed in the context of these principles with a view to identifying whether the features of the regime create any barriers to linkage and, if so, how these might be overcome.

II. LINKING – ADVANTAGES AND DISADVANTAGES

The prime aim of linking two regimes is to create a larger market that would see price fluctuations dampened and the influence of speculators and market manipulation reduced. The price signal might also be more credible in the sense that linking suggests that a domestic ETS is a long-term commitment less prone to the lure of short-term discretionary domestic policy. Greater price certainty would be more amenable to commercial activity.[4]

A larger and more diversified market should also provide greater opportunities for credit acquisition and emissions abatement and assert downwards pressure on the carbon price leading to a more cost effective emissions reduction outcome. Funds would flow to those jurisdictions with a lower cost of abatement (i.e. those that had most effectively reduced their carbon emissions below their targets and so were characterized by excess credits) so favouring and supporting such jurisdictions and leading to a more efficient allocation of resources. The world would become greener, cheaper.

In addition to the economic case for linking some political advantages are also envisioned. Enhanced cost effectiveness and the ability to point to international partners might render stricter domestic targets more acceptable. Also linking domestic regimes would complement inter-country trading under the Kyōto Protocol as well as provide a fallback structure to the Kyōto regime.[5] Finally, if countries with ETSs link then this

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2013, available at *http://www.edf.org/sites/default/files/EDF_IETA_Tokyo_Case_Study_September_2013.pdf*.

4 OECD ENVIRONMENT DIRECTORATE AND INTERNATIONAL ENERGY AGENCY, Towards international emissions trading: design implications for linkages, Information Paper, OECD 2002, available at *http://www.oecd.org/environment/climatechange/2766158.pdf* and see R. B. DELLINK/S. JAMET/J. CHATEAU/R. DUVAL, Towards global carbon pricing: direct and indirect linking to carbon markets, OECD Environment Working Paper 2010, available at *http://www.oecd-ilibrary.org/environment/towards-global-carbon-pricing_5km975t0cfr8-en*.

5 The *Kyōto Protocol* established three market based mechanisms under which carbon permits might be effectively traded. Initially developed countries receive an assignment of units relative to their emissions "budget" (known as assigned amount units ("AAUs"). Developed countries are also granted removal units ("RMUs") in relation to domestic activities resulting in the net removal of greenhouse gases. RMUs and AAUs may be converted into emission reduction units ("ERUs"), the latter through a "joint implementation project", namely a project that allows developed countries to work together by jointly implementing initiatives that reduce overall greenhouse gas emissions. Finally, there are certified emission reduction

both sends a message of approval to linkage partners and also one that might help to engage the big polluting countries, especially the USA.[6]

The case for linkage focuses primarily on the global benefits. A disadvantage of linking though is that the likely reduction in the carbon price, together with the ability to purchase foreign credits, may result in lower emissions reductions in a given jurisdiction, although globally the reductions exist. For this reason a jurisdiction may seek to compromise the desire to be part of a larger market with a cap on the amount of foreign credits that may be claimed, thereby ensuring some level of local reductions.

There is also the potential to import price volatility from a linkage partner and the potential negative distributional consequences for a jurisdiction. The later includes not only the potential for wealth to flow to other jurisdictions with lower marginal costs of abatement but also the loss of ancillary benefits that might come from domestic emissions abatement (rather than the purchase of foreign credits), such as reduced local pollution, increased energy security, encouragement of R&D and general economic stimulus. Furthermore, for a particular jurisdiction not all potential linkage partners may be welfare enhancing. Some may seek to adjust national caps and game the linkage. Domestic policy objectives may be compromised by the need to amend an ETS to effect linkage or by any resultant fall in the carbon price, especially where there are different priorities between the linked jurisdictions given to cost containment over environmental effectiveness. There is also likely to be some loss of sovereignty by each government over their regime arising from the need to accommodate the views of the linkage partner.[7]

Ultimately, the decision whether to link is one requiring the identification of, and a trade-off between, the various advantages and disadvantages with the possible expenditure of political capital.

III. THE TMG SCHEME

Pursuant to the *Kyōto Protocol,* Japan committed to reducing its emissions by 6% relative to 1990 levels by 2012. Although the national government experimented with vari-

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units ("CERS") generated from developed countries investing in projects that either reduce emissions or sequester carbon in sinks in developing countries, the so-called "clean development mechanism" designed to draw developing countries within the Protocol. The intention was that CERs and ERUs can be used by countries to comply with their emission limitation targets under the Protocol or by operators of installations covered by domestic ETSs in order to meet their carbon emission obligations or can be assigned to other countries.

6 See W. STERK/R. SCHULE, Advancing the climate regime through linking domestic emission trading systems?, in: Mitigation and Adaption Strategies for Global Change 14 (2009) 409, available at *http://ideas.repec.org/a/spr/masfgc/v14y2009i5p409-431.html*, for a comprehensive statement of the advantages of linking, including political benefits see 411–412.

7 Generally see C. FLACHSLAND/R. MARSCHINSKI/O. EDENHOFER, To link or not to link: benefits and disadvantages of linking cap-and-trade systems, in: Climate Policy 9 (2009) 358. The authors generate a useful table (Table 2) summarizing the potential advantages and disadvantages of linking.

ous small scale voluntary ETSs,[8] in response to sustained business resistance the implementation of a national regime was continually deferred.[9] The difficulties presented by the Japanese political system of formulating and implementing policy involving multifaceted political issues, such as environmental reforms embracing fiscal measures, have been documented.[10] The government has even admitted that its 2010 United Nations climate change conference pledge to reduce emissions by 25% relative to 1990 by 2020 may be no longer viable[11] and surprised many observers by withdrawing from the *Kyōto Protocol* at the end of the first commitment period.[12] With this withdrawal and a change of Government in 2012 the country's national climate change policy, including her

8 In particular, "JVETS", a regime based on the EU system. Unfortunately this scheme had only attracted a small number of participants. For participating firms, one third of the cost of new facilities to reduce emissions was borne by the Government. Firms were initially allocated emission allowances and set targets (absolute, not intensity based). Those that failed to achieve their targets could purchase excess credits from firms that had exceeded their targets (or use j-CERS from Clean Development Mechanism projects) or return the subsidy to the Government: S. MONJON, Implementation of an emission trading scheme in Japan: some food for thought, in: Climate Strategies (October 2011), available at *www.climatestrategies.org*. JVETS was apparently introduced as a voluntary scheme only, due to strong opposition from industry and the Ministry for the Economy, Trade and Industry. It was only of limited effectiveness as many major emitters did not join, targets did not require deep reductions and penalties were not severe: H. KIMURA/A. TUERK, Emerging Japanese emissions trading schemes and prospects for linking, Climate Strategies (October 2008), available at *www.climatestrategies.org*. On the trial schemes see J. MOCHIZUKI, Assessing the designs and effectiveness of Japan's emissions trading scheme, in: Climate Policy 11 (2011) 1337–1349, available at *http://www.tandfonline.com/doi/abs/10.1080/14693062.2011.579289#preview* and X. LIU/K. OGISU/S. SUK/K. SUDO, GHG emissions trading schemes in Northeast Asia: an overview and analysis of current scenarios, in: Kreiser et al. (eds.), Carbon pricing, growth and the environment (Cheltenham 2012). On the ETS in Japan generally see the Ministry of the Environment website at *http://www.env.go.jp/en/earth/ets/mkt_mech.html*.

9 For example, see "Japan industry unites against carbon tax", 7 December 2009, available at *http://uk.reuters.com/article/2009/12/07/climate-japan-idUKTOE5B609U20091207*.

10 Discussed in L. XIANBING/O. KAZUNORI/S. SUNHEE/S. TOMOHIRO, Carbon tax policy progress in north-east Asia, in: Kreiser/ Sirisom/ Ashiabor (eds.), Environmental Taxation in China and Asia-Pacific (Cheltenham 2011) 116. See in particular, the Ministries of Environment ("MOE"), Economy, Trade and Industry ("METI"), Land Infrastructure, Transport, Tourism ("MLIT"), Agriculture, Forestry and Fisheries ("MAFF") and Finance ("MOF"). Also see S. RUDOLPH/S. J. PARK, Lost in Translation? The political economy of market-based climate policy in Japan, in: Soares et al. (eds.), Critical Issues in Environmental Taxation, Volume VIII (Oxford 2010) 163.

11 L. SHANAHAN, Japan's energy crisis puts ETS launch on ice, in: The Australian, 29 February 2012. The experimental ETS continues but solely on a voluntary basis with participating entities establishing their own emission reduction targets although verification by the government is a pre-requisite to any trading.

12 The rationale for Japan's decision is discussed in A. LIGHT, Has Japan killed the Kyoto Protocol?, in: Center for American Progress, 8 December 2010, available at *http://www.americanprogress.org/issues/green/news/2010/12/08/8733/has-japan-killed-the-kyoto-protocol/*.

emissions reductions commitment, has been reoriented away from domestic reductions to providing emissions reduction technology to developing nations.[13]

Against this background of procrastination at the national level, cap and trade ETSs have operated in Tōkyō and Saitama[14] since 1 April 2010 and 2011 respectively. Although sub-national schemes, they are not insignificant. For example, Tōkyō's greenhouse gas emissions totaled 59.6 million tonnes in 2006 putting it on par with countries such as Denmark and Norway.[15]

In the first three years of operation of the TMG regime emissions reductions of 13%, 22% and 22% respectively have been reported,[16] suggesting that it has been highly successful. The features of the regime can be outlined as follows:[17]

- The scheme is mandatory and covers approximately 1,400 commercial and public facilities that have a total consumption of fuels, heating and electricity of at least 1,500 kilolitres per year (crude oil equivalent applying a conversion factor to other energy sources consumed). It is, thus, a downstream scheme focusing on indirect emissions and covers around 20% of total carbon dioxide emissions in Tōkyō.[18]
- Whilst the scheme only applies to energy related carbon dioxide emissions if a track record of total emissions reductions for greenhouse gases other than energy related carbon dioxide can be independently verified such entities may be permitted to use these reductions to fulfill their carbon dioxide reduction obligations.[19] Notably 95% of Tōkyō's emissions are carbon dioxide energy based emissions.[20]

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13 See J. DABNER/S. KUROKAWA, Japan's new direction on climate change, in: East Asia Forum, 3 July 2013, available at *http://www.eastasiaforum.org/2013/07/03/japans-new-direction-on-climate-change/*.

14 The Saitama regime substantially replicates the Tokyo regime but is a voluntary arrangement (in the sense that there are no sanctions for non-compliance) that applies to around 600 entities. Allowances are provided and these may be traded. Again offsets are available. Agreement was reached to link the two regimes in September 2010: MONJON, *supra* note 8.

15 BUREAU OF THE ENVIRONMENT ("BOE", TMG), "Tokyo cap-and-trade program: Japan's first mandatory emissions trading scheme", March 2010.

16 "The Tokyo cap-and-trade program achieves 22% reduction after 3rd year", TMG media release, 12 March 2014.

17 See The Tōkyō Metropolitan Environmental Security Ordinance "Tokyo cap-and-trade program" for large facilities <Detailed Documents>, BOE, 30 March 2012, available at *www.kankyo.metro.tokyo.jp/en/climate/* and S. NIEDERHAFNER, The governance modes of the Tōkyō Metropolitan Government Emissions Trading System, 2013, available at *http://hdl.handle.net/10086/26005* .

18 S. RUDOLPH/T. KAWAKATSU, Tokyo's greenhouse gas emissions trading scheme: a model for sustainable megacity carbon markets?, Joint Discussion Paper Series in: Economics No. 25-2012, available at *http://www.uni-marburg.de/fb02/makro/forschung/magkspapers/25-2012_rudolph.pdf*.

19 Whilst these reductions cannot directly give rise to tradable credits, the counting of such reductions may result in excess reductions that can otherwise be converted to tradable cred-

- Entities affected must reduce their carbon dioxide emissions based on (absolute) caps or cover any excess emissions by purchasing emissions allowances from other entities covered by the scheme.
- Alternatively, entities may satisfy their obligations by acquiring offset credits from four other sources. More particularly, renewable energy certificates granted to suppliers generating electricity through renewable resources may be acquired and relied on,[21] SME facilities within the Tōkyō area (i.e. too small to be covered by the ETS) that implement energy saving measures resulting in verifiable emission reductions can be issued with credits which may be acquired by liable entities,[22] and from 2015 limited credits will also be available in relation to verified emissions reductions by large entities outside the TMG program.[23] Credits issued under Saitama's regime may also be relied on. Saitama credits may include both those acquired from entities to which its ETS applies and from SMEs that have implemented energy saving measures resulting in verified emissions reductions.
- Five year commitment periods are mandated. Under the 2010 to 2014 period the cap was set at a 6 or 8% reduction in the base year emissions[24] with the second commitment period reduction set at 15 or 17%. Whilst this would seem to reflect a relatively stringent requirement, such that TMG expects allowance prices to increase to up to US$150 per tonne in the second period,[25] in fact due to both the economic downturn and, possibly, the effect of energy

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its. This measure is expected to only apply to a handful of facilities known to the TMG: Meeting with TMG officials, 5 April 2013.

20 K. DUPONT (Padeco Co Ltd), Cities and climate change mitigation: case study on Tokyo's emissions trading system, World Bank (May 2010), available at *http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1226422021646/Tokyo_ETS_Padeco.pdf* and see *http://siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1226422021646/Directions5.pdf?resourceurlname=Directions5.pdf.*

21 See DUPONT, *supra* note 20, at pages 2–9 for discussion of the green electricity certification (and also the city solar energy bank) initiatives that may give rise to these credits.

22 BOE, *supra* note 15, at paragraph 3.4.1.

23 Registration is required along with adherence to monitoring, reporting and verification rules. Credits up to one third of a company's obligations only may be relied upon: Id.

24 6% for factories and most buildings, otherwise 8% for buildings and facilities in which air conditioning and heating from district cooling and heating plants make up 20% or less of energy consumption. Base year emissions are calculated as the average of any three consecutive years between FY2002 and FY2007. Updating of the permitted emissions is available upon a change in floor space, purpose of use or amount of equipment used. There is also scope to ameliorate this reduction level for the following fiscal year period (by ½ or ¼) if certification as having made outstanding or excellent progress with regards to the implementation of measures against global warming is obtained and this can be maintained. One rationale for this measure is to accommodate (mainly) new businesses that had already achieved substantial emissions reductions and might find it difficult to achieve further significant reductions from the base year amounts.

25 RUDOLPH/KAWAKATSU, *supra* note 18, at section 3.1.

rationing following the Fukushima incident, the first commitment period caps were met in the first two years.[26]

- Allowances are allocated free of charge according to the grandfathering method based on the base year emissions adjusted for the 6/8% or 15/17% reduction. A reserve of allowances is maintained to be issued to new entrants based on their average actual emissions over two to three years.[27] Where emissions levels fall below 1,000 kilolitres for the previous year or 1,500 kilolitres for three consecutive years the facility may leave the program.
- Emissions reports lodged with TMG are to be verified by a registered third party verification agency. The calculation of emissions is based on the consumption of gas and electricity converted to carbon dioxide equivalent emissions measured in metric tonnes using an emissions factor. Overall, the monitoring, reporting and verification procedures are thorough.[28]
- Penalties are imposed in the event of a breach of the emissions cap. At first instance the entity will be ordered to acquire credits (or make reductions) equal to 1.3 times the shortfall. If this order is not complied with then punishment can include fines of up to 500,000 Yen (payment of which does not absolve the breach), publication of the breach and payment of compensation to TMG for purchasing allowances on behalf of the non-compliant entity. Other penalties apply, for example for failing to lodge a report.[29] The penalty system is considered stringent.[30]
- Each facility has an account with the Registry of Reductions. A record needs to be made when acquiring, transferring or using excess reduction or offset credits to fulfill obligations. Only excess credits beyond the annual reduction obligations may be traded once the reductions have been verified and converted into credits in a trading account upon application.[31] Excess credits up to half of the entity's base year emissions calculation may be sold. TMG has no part in the sales process other than to provide a website for participants to engage via and the holding of annual "matching" seminars. It has been sug-

26 93% of covered facilities reduced their emissions by in excess of the required first commitment period amount by the end of the second year with 70% having also achieved their second commitment period reductions of 17%: "The Tokyo cap-and-trade program achieved 23% reduction in the 2nd year", TMG media release, 21 January 2013.

27 With the execution of specified energy saving measures assumed, thereby denying new entrants the opportunity to inflate their allowance.

28 RUDOLPH/KAWAKATSU, *supra* note 18, at section 2.2.

29 Generally see h*ttp://www.kankyo.metro.tokyo.jp/kouhou/english/index.html*.

30 RUDOLPH/KAWAKATSU, *supra* note 18, at section 3.1.

31 In contrast to the EU regime that allows for trading prior to verification. The rationale for the TMG procedure is to encourage facilities to rely primarily on reduction strategies rather than trading: DUPONT, *supra* note 20, at appendix 2. In the year following the end of the five year commitment period credits will automatically be entered into the trading account once excess reductions are verified by TMG.

gested that the trading mechanism results in high transaction costs and hampers the efficiency of the market.[32]

- As with the commitment period, the compliance period is also five years. Whilst an emissions report must be lodged by the end of November each year, and any reductions exceeding the annual obligations may be traded once verified by TMG, any deficiencies do not need to be made up (through purchases of credits) until the end of the five year commitment period. In lieu of selling credits arising from excess reductions at the end of the first commitment period they may be banked and used in the second commitment period[33] but borrowing for the purposes of trading is not allowed.
- TMG reserves the power to implement certain measures to intervene in the market to contain the cost of allowances. In particular, the supply of allowances may be increased by expanding the supply of offset credits, for example from reduction activities by SMEs or, as a further measure, increasing the use of credits from outside Tōkyō or enabling the use of Kyōto credits (which otherwise are not accepted). It is not expected that this measure would be utilized except in extreme circumstances and following consultation.[34]

IV. PRINCIPLES FOR LINKING ETSS

Links might be unilateral, bilateral or multilateral depending on the extent of reciprocal arrangements. Furthermore, an ETS may link with another directly or indirectly. The latter may occur, for example, where two ETSs approve the use and trade of Kyōto CERs and ERUs in which case the international market for these allowances extends to and influences the carbon price in both markets. Thus if a higher carbon price in one jurisdiction was to lead to the purchase of CERs on the international market resulting in their scarcity then this will contribute to pushing up the carbon price in that other market. Furthermore, indirect linkage may occur where direct trading between two regimes is conducted through a clearing house, which might be necessary to counteract differences between the two systems (such as methods of calculation).[35]

As observed above, whilst linking is generally advantageous, issues can arise with linkages where the environmental objectives within one ETS are pursued with less strin-

32 See DUPONT, *supra* note 20, at pages 2–9 for a description as to how the market operates.
33 Replication for the second and third commitment periods is not currently anticipated: Meeting with TMG officials, 5 April 2013.
34 Meeting with TMG officials, 5 April 2013.
35 Such a clearing house can also be used as a means of controlling or decoupling the link between the two regimes: A. ROSSNAGEL, Evaluating links between emissions trading schemes: an analytical framework, in: Carbon and Climate Law Review 2 No. 4 (2008) 394 at 397.

gency thereby impacting on the achievement of the environmental objectives of the other regime. In a less stringent regime the price is likely to be lowered reducing the incentive to innovate and reduce emissions: cost containment is weighted more heavily over environmental effectiveness. The effect on market functionality and the relative competitiveness of entities operating under each regime are also considerations relevant to linking, although whilst differences can lead to competitiveness distortions these will arise in any event regardless of whether the regimes are linked. It will be observed from the discussion below that few design characteristics of an ETS are critical to whether systems may be linked, as distinct from whether they should be or whether linkage is politically acceptable to the domestic constituency.

The fundamental design issues in establishing an ETS and their implications for linking compatibility are considered below,[36] roughly in order of significance.[37]

Intensity versus Absolute Targets

An ETS may mandate that entities not exceed targets expressed as emissions per unit of output or activity or even per unit of input. These are known as intensity or relative targets. One limitation of such targets is that emissions may continue to increase as a result of increases in activity. They are thus more liberal than absolute targets, although in both cases the stringency of the targets is a critical consideration. Typically absolute targets are set by reference to the historical emissions ("grandfathering") with a reduction factor applied or "benchmarking".

Whilst it may be possible to link intensity based and absolute target ETSs,[38] participants operating under the intensity regime are likely to be able to financially benefit from the sale of excess credits due to the more liberal nature of intensity targets, resulting in a welfare transfer. Also an intensity based regime may impact on the environmental effectiveness of the combined regimes as output increases will increase the number of allowances available. Furthermore, as under an intensity regime allocations may be

36 Much of the following discussion is derived from OECD 2002, *supra* note 4, STERK/SCHULE, *supra* note 6, ROSSNAGEL, *supra* note 35, J. ELLIS/D. TIRPAK, Linking GHG emission trading schemes and markets, OECD 2006, available at *http://www.oecd.org/env/climatechange/greenhousegasemissionstrading.htm*, W. BLYTH/M. BOSI, Linking non-EU domestic emissions trading schemes with the EU emissions trading schemes, OECD 2004, available at *http://www.oecd.org/env/cc/32181382.pdf* and M. J. MACE/I. MILLAR/C. SCHWARTE/J. ANDERSON/D. BROEKHOFF/R. BRADLEY/C. BOWYER/R. HEILMAYR, Analysis of the legal and organizational issues arising in linking the EU emissions trading scheme to other existing and emerging emissions trading schemes, Foundation for International Environmental Law and Development (London)/Institute for European Environmental Policy Institute (Brussels)/World Resources Institute (Washington Study commissioned by European Commission, Final Report, May 2008.

37 Whilst the discussion of the views of current linkage parties and the need for *Kyōto Protocol* compliance appear at the end of this section in a given situation these considerations may be much more significant.

38 Technical fixes may be necessary: see BLYTH/BOSI, *supra* note 36, at paragraph 2.3.

given out only once the current output data is known (and not in advance as with absolute targets) this could result in a liquidity shock for the absolute scheme at the moment of adjustment. Notably the EU has ruled out linking its ETS with schemes based on intensity targets.[39]

One circumstance where linkage to an intensity based regime may be less of a concern is if the regime is that of a Kyōto ratifying country where an overall national cap is imposed on emissions and the allowances of the national ETS are shadowed by and/or convertible to Kyōto units. In such circumstances, there should not be any environmental compromise associated with linking since increased emissions will need to be offset elsewhere in the economy, or through purchase of Kyōto units.[40]

Ex-post Adjustments of Allowances

Emissions limits are specified over a period usually described as the "commitment period". They are typically established at the start of that period. Systems which allow for subsequent adjustments as a price controlling measure are unlikely to be attractive as linkage partners. Such a measure could enable politically-motivated market influence and undermine the market.[41] Any system which contains such a measure that detracts from the free rein of market forces would reduce the environmental integrity of any other system to which it was linked.

Market Interventions and Price Caps

Aside from adjusting allowances, market intervention is conceivable through other, possibly more subtle, measures. Differing views exist as to whether these mechanisms should be built into an ETS. Some view a system where the market dynamics are free to operate as preferable whilst others prefer the government to be able to step in as an emergency measure to correct market imperfections, such as those caused by speculative practices. Where systems are linked then if one permits market interventions the effect will be to impact both systems. This may form a barrier to linking[42] although the very fact of linking and expanding the market can reduce the risk of speculation and price spikes.

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39 KIMURA/TUERK, *supra* note 8. Also see OECD 2002, *supra* note 4, at paragraph 3.5. At sub-paragraph 3.5.5 the OECD outlines a gateway mechanism that might be utilized to prevent transfers to the absolute sector that would impact on the environmental effectiveness of that sector.

40 BLYTH/BOSI, *supra* note 36, at paragraph 2.3.

41 MACE et al., *supra* note 36, at paragraph 3.4.4.

42 See the grounds for the pessimistic conclusion by J. ANDERSON / M. MEHLING / H. VAN ASSELT in the briefing document to the European Parliament: Linking the EU emissions trading system to a future US emissions trading scheme, 2009, available at *http://www.europarl.europa.eu/RegData/etudes/etudes/join/2009/416200/IPOL-JOIN_ET%282009%29416200_EN.pdf.*

In particular, if an ETS without a price cap is linked to one with a cap (or other cost containment measures),[43] the cap will effectively establish the maximum compliance cost for both regimes. Where the allowance price (in the uncapped jurisdiction) is above the price cap entities operating under the ETS without the cap will purchase allowances from entities operating under the ETS with the cap undermining the environmental integrity of the uncapped scheme. The extent to which the price cap (or other cost containment measures) may discourage linking depends upon how much the price cap (or trigger price) approximates the expected marginal abatement costs. Less concern may arise if the price is set so high as to amount to a true emergency measure only.

It can be expected that this may be an ongoing issue as new ETSs emerge, especially those with a broad coverage and that are likely to be price takers in a larger market. Governments are likely to require their regimes to display a large degree of regulatory certainty and price stability and predictability, at least in their early years, to garner political support. Thus cost containment measures, such as price caps or offset credit provisions, may have a higher priority than ensuring that the regime is designed with linkage in mind.[44] The ultimate question for any prospective linkage partner will be whether the measure is intended to be readily employed for cost containment purposes or only in emergencies as a last resort.

Banking, Borrowing and the Commitment and Compliance Periods

Where an ETS allows an entity to retain allowances to be offset against its emissions obligations of a future period this is known as banking. This is not problematic where it reflects mitigation methods or excess purchases over needs (rather than over-allocation of free allowances). However differences in the stringency of banking rules can lead to competitive advantages in favour of entities operating in the less stringent regime.

Borrowing means that an entity is allowed to use allowances expected to be granted in a future period to cover current emissions. Borrowing may be problematic for the integrity of an ETS because it might encourage lobbying for a relaxation of future targets by entities that have borrowed and poses the risk that such entities may terminate their activities after having utilized their future allowances. Thus an ETS that allows borrowing is less attractive as a linkage partner given the risk of weakening the environmental effectiveness of the partner scheme.[45]

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43 Such as "strategic allowance reserves" of emissions credits which might be released should the price climb too high (also known as safety valves or circuit breakers).

44 A. TUERK/M. MEHLING/C. FLACHSLAND/W. STERK, Linking carbon markets: concepts, case studies and pathways, in: Climate Policy 9 (2009) 341–357, at 344–345. The existence of a price cap in Australia's 2008 version of an ETS was argued as a major obstacle to linking: F. JOTZO/R. BETZ, Australia's emissions trading scheme: opportunities and obstacles for linking, in: Climate Policy 9 (2009) 402.

45 Although systems may be put in place to mitigate concerns: see OECD 2002, *supra* note 4, at paragraph 3.6 and sub-paragraph 3.6.3 in particular.

Not only is it preferable that the rules on banking and borrowing be consistent across two linked schemes but the same considerations mandate that the period over which there is a commitment to reduce emissions and any compliance or trading intervals within this period should be the same.[46] Where there are discrepancies in these rules across linked schemes the effectiveness of the scheme with the more stringent rules will be reduced because it would provide more avenues to sidestep any prohibitions on banking or borrowing. For example, excess allowances (that may not be banked) might be sold in the other scheme whilst borrowed allowances (or those from a subsequent compliance period) might be sold across to entities in a jurisdiction where borrowing is prohibited. Jurisdictions might also be tempted to "game the system" to use a new commitment period to impose less stringent obligations on domestic entities and thereby favour the entities in their jurisdiction by enhancing their potential to have excess allowances for sale.[47]

Target Stringency

The relative stringencies of targets adopted by the schemes and their enforcement are a further linkage consideration. If caps are not comparable then the less stringent regime will have the effect of impacting on the environmental effectiveness of the other scheme and lead to a wealth transfer to the more lenient country where excess credits are likely to have been generated.

However, it should be observed that it is not so much the level of the emissions target in each jurisdiction that is relevant to the capacity to link but rather the relative shortage of emissions allowances that it creates and hence the extent of the incentive to reduce emissions. Where two systems are linked and the reduction pressure in one jurisdiction is lower than the other then it could be expected that the two will converge leading to a reduction in the likelihood of achieving the environmental objectives of that jurisdiction imposing the greatest cuts.

Other aspects related to the target, such as the setting mechanism and whether it is static or dynamic (i.e. able to change pursuant to a set model), are relevant and some agreement should preferably be reached prior to linking. However, whilst differences will have an impact on the operation of each of the opposing systems none should be fatal to linkage. Rather the critical consideration is the overall level of ambition, not the specific features of the target cap.

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46 Although others have argued that different trading periods can be beneficial as they improve market liquidity: W. STERK/M. BRAUN/C. HAUG/K. KORYTAROVA/A. SCHOLTEN, Ready to link up? Implications of design differences for linking emissions trading schemes, JET-SET (Joint Emissions Trading as a Socio-Ecological Transformation) Cross-Section Project 4, Working Paper I/06, Wuppertal July 2006.

47 MACE et al., *supra* note 36, at paragraph 3.5.4.

Limits on the Purchase of Foreign Allowances

The rationale for linkage is to establish a larger market for emissions allowances thereby reducing the possibility of wild price fluctuations and promoting efficiencies. Thus, if entities in one linked jurisdiction have excess allowances due to the more widespread adoption of clean energy then they will be able to sell these, thereby lowering the global price.

On the other hand, complete reliance on cheap allowances sourced from a linked jurisdiction will dampen the incentive effect in a particular jurisdiction to reduce domestic emissions (albeit global emissions are down). So there is a tradeoff and some jurisdictions may seek to design their ETS to place a limit on the amount of foreign and/or Kyōto credits that might be used to cover an emissions obligation.[48] However restrictions of this sort imposed by one regime and not others may generate inconsistent treatment of competitive industries across the linked markets.

Indirect Linking and Project Based Credits/Offsets

Linking to one system has the effect of indirectly linking to all systems to which it is linked. Thus if one system recognizes CERs from CDMs and/or ERUs from JIs and another does not (or limits the use of such credits)[49] then this will impact on the innovation incentive of that other system.[50] Entities in the system with the restrictions might enter into swap arrangements effectively converting any non-allowed credits into allowed ones. This issue, though, would not affect the world market where the same incentive to reduce emissions will remain. It would purely allow for the rules of a particular ETS to be side stepped.

Furthermore, where domestic regimes give rise to offsets or allowances then any prospective linkage partner will wish to ensure that the monitoring and verification procedures embedded in these regimes are sufficiently rigorous and comparable.[51] Some uniformity in the rules as to the recognition of offsets and allowances is, therefore, preferred, although if domestic offsets and allowances are shadowed by and/or convertible to a Kyōto unit (and hence satisfy the Kyōto framework for recognition) then this fact alone is likely to provide sufficient endorsement to accommodate any linkage concerns.[52]

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48 One justification for limiting the availability of Kyōto units to satisfy domestic ETS obligations is the existence of "hot air" permits which arose from the excessive allocation of units to former Eastern Bloc countries prior to the massive reduction in emissions experienced by them in the 1990s. See the discussion in JOTZO/BETZ, *supra* note 44.

49 See note 5 for an explanation of these terms.

50 Thus making linkage less attractive to the more stringent regime: see ANDERSON et al., *supra* note 42; see the concerns with Australia's 2008 version of an ETS: JOTZO/BETZ, *supra* note 44.

51 MACE et al., *supra* note 36, at paragraph 3.5.5.

52 BLYTH/BOSI, *supra* note 36, at paragraph 2.2.

Mandatory versus Voluntary

ETSs can be designed to be either mandatory regimes or voluntary. Voluntary regimes can vary in terms of their "voluntariness" where incentives for remaining in the scheme, penalties for leaving and other social pressures have an application.

Depending on how truly voluntary a regime is there may be adverse implications for any linked mandatory scheme. Allowance prices tend to be lower in voluntary schemes both contributing to and reflecting the lower innovative pressure and lower incentive to reduce emissions. Competitive distortions can occur between entities in the two regimes and the functionality of the combined systems each time market forces take effect, causing participants to depart the voluntary system. Competitiveness issues also arise where incentives are provided to encourage entities to join the voluntary scheme.[53]

Non-compliance Provisions, Sanctions and Countervailing Incentives

An ETS with rigorous non-compliance provisions, such as high penalties, and effective governance and enforcement might be reluctant to link with an ETS with a less stringent regime. If the penalties imposed by one regime are lower or poorly enforced then linkage will encourage non-compliance in that program with the allowances sold to entities operating in the other regime. That is, non-compliance would be exported to the country with the weakest penalty regime.[54] Where a penalty absolves an entity from the obligation to cover its emissions with allowances then the penalty effectively acts as a price cap. As discussed above, the presence of such a price cap can compromise the environmental integrity of both regimes.

A related issue may be the respective income and consumption tax treatment of gains and losses from trading in the respective jurisdictions. For example, it is conceivable that if one jurisdiction exempts ETS trading gains and/or transactions from taxation and the other does not then this could impact on achievement of the environmental objectives of the taxing regime as an incentive might exist for entities in the non-taxing regime to sell their allowances across.[55] Pressures on price distortions across the two regimes are also a possibility from inconsistent taxation regimes. Certainly inequities across the regimes would be created, although these would exist irrespective of linkage.

Similarly, if one jurisdiction has additional taxes and imposts on emissions then these will also influence the carbon price in both jurisdictions. Conversely, where one jurisdiction has in place countervailing incentives, such as subsidies or tax abatements for emit-

53 OECD 2002, *supra* note 4, at sub-paragraph 3.7.1.
54 OECD 2002, *supra* note 4, at sub-paragraph 3.7.2.
55 There are numerous variables that could complicate this analysis such as the residency for tax purposes of the entities involved, the source attributed to any gain, whether the tax regimes of the respective jurisdictions are global or territorial and the application of any double tax treaty between them.

ting production or consumption then these too will impact the carbon price. Such taxes and/or incentives should be either replicated in all linked jurisdictions or eliminated.[56]

Monitoring, Verification and Reporting

It is critical to the integrity of an ETS that it contains an emissions reporting obligation that is effectively monitored and audited for verification. Verification is also important in the context of the credits/offsets that are available.

If the design features of each linked ETS in terms of monitoring, verification and reporting vary markedly (in terms of stringency if not detail) then across the schemes the incentive to reduce emissions and pressure to innovate will converge at the level of the least robust scheme.[57] Each system needs to be designed so that avoidance opportunities are minimized (for example, all emitting sources of a particular participant are caught) and emissions need to be fully and reliably measured. The verification authority needs to be independent and reliable. If under one regime less stringent verification is a feature then it may be less attractive as a linkage partner. The other partner may require additional verification activities, typically using the services of an independent entity, before recognizing cross border allowances or credits/offsets.

Less important from a linkage perspective are the difference in the scope and method of the reports and, even, whether allowance or unit rights are identical as differences in the rights attached to allowances might be resolved using a clearing house intermediary.[58]

Upstream versus Downstream Application

The designers of an ETS must decide upon whom to impose the requirement to account for emissions through the purchase of allowances. There is a spectrum of possibilities from imposition on producers and importers of fuels, to those using the fuels to create energy and emitting greenhouse gases (primarily the energy suppliers and some manufacturers – making *direct* emissions accountable) through to where the ultimate consumer of a product or service may have to account for the *indirect* emissions embedded in the item or service (distinguished as upstream or downstream approaches).[59] From a theoretical perspective the incentive effect away from emissions intensive activities should be the same as under either approach the ultimate consumer would be paying for the price on carbon, in the upstream approach the carbon price is reflected in the price of the fuel,

56 ROSSNAGEL, *supra* note 35, at 399 (fn. 31).

57 Although efforts have been made to standardize these rules: see WORLD BUSINESS COUNCIL FOR SUSTAINABLE DEVELOPMENT (WBCSD), The Greenhouse Gas Protocol – a corporate accounting and reporting standard (WBCSD/WRI, 2001).

58 See note 35.

59 The OECD 2002 report describes an approach that caps emissions at the emissions level as "direct" and one where the ultimate consumers are held accountable for the emissions embedded in the goods or services they consume as "indirect": see *supra* note 4, paragraph 3.3. However described the issue remains that linking is, nevertheless, achievable although systems would need to be implemented to ensure no regulatory gaps or double jeopardy.

energy, item or service. However the potentially wider coverage and administrative and compliance cost advantages of an upstream approach render it more attractive.

It is possible that double jeopardy or regulatory gaps may emerge where trade occurs between two jurisdictions with differing approaches. For example, a gap may occur where one regime has an upstream application and the other downstream and an upstream entity in the downstream regime sells goods to consumers in the upstream jurisdiction. This is not necessarily a consideration relating to the linkage of the two carbon markets but more as to the integrity of the two regimes and the significance of some form of border adjustment mechanism. Thus this factor should not impact on the ability to link two schemes.[60]

Sector and Gas Coverage

A further design issue with an ETS is as to what sectors or categories of emissions and to what gases it should apply. As a general principle, the more sectors and gases that are covered the greater the potential for market efficiency and lower compliance costs.[61] Linking schemes that apply to different sources of greenhouse gases or, indeed, different gases should be achievable and actually increase opportunities for abatement and reduce costs. Each regime would, however, need a common transaction unit and adequate monitoring and verification regimes.[62]

Free Allocation versus Auctioning

Essentially two methods can be adopted to allocate allowances. A government might sell them through a competitive auctioning process or allowances could be allocated free of charge in proportion to the entity's past emissions (grandfathering). In the case of grandfathering an optional feature is for each entity's allocation proportion of the total allowances to be adjusted up or down in the next period on the basis of an increase or decrease in its activity level (updating).

The allocation method needs to be such as to not affect the legitimacy of the system as a whole. The possibility of windfall profits to market participants is a risk with free (over) allocation. In the case of an auctioning system care must be taken to ensure that the auctions operate with market efficiency and integrity in mind. In particular, competitive or collusive conduct by bidders at an auction must be avoided.[63] Auctioning in one jurisdiction where the allowances are freely allocated in another can lead to wealth dis-

60 See ROSSNAGEL *supra* note 35, who discusses the significance of the alternative approaches in some detail. Also see OECD 2002, *supra* note 4, at paragraph 3.2.

61 In the sense that the costs of abatement or allowances should be reduced with a wider coverage.

62 OECD 2002, *supra* note 4, at paragraph 3.4.

63 MACE et al., *supra* note 36, at paragraph 3.7.1. Also see M. J. MACE/J. ANDERSON, Transnational aspects of a linked carbon market, in: Carbon and Climate Review 2 (2008) 190.

tribution and competitive distortions between competing enterprises. However linking is unlikely to worsen the situation.[64]

Compatibility of Registries

Compatibility of registries and the trading platform are important to ensure the functionality of the linked systems. Preferably they should be capable of online linkage. To some extent differences may be ameliorated by the use of an intermediary clearing house.[65]

Kyōto Protocol Compliance

Countries that remain signatories to the *Kyōto Protocol* will wish to ensure that any allowances acquired from a foreign source are backed by Kyōto units which can then count towards the country's international emissions reduction obligations.[66] This could be problematic where a potential linkage partner is not a member of the Kyōto framework (or their ETS does not comply with Kyōto principles) or where it is a sub-national entity which might not be able to effect a transfer of national Kyōto units. In such circumstances, though, a gateway mechanism, which provided a procedure to ensure that transfers from outside the Kyōto framework have Kyōto allowances attached, might facilitate the creation of a linkage. Such a mechanism would also ensure that where transfers are made to entities outside the framework any attached Kyōto allowances are captured and not used inappropriately.[67]

Linkage to an ETS in a developing country which has no national emissions cap could also potentially contribute to a form of carbon leakage where there is a net purchase of allowances from the non-Kyōto jurisdiction.[68]

Views of Existing Linkage Partners

Linking to a new jurisdiction has flow on implications for any existing linkage partners. The ambition reflected by the combined schemes will settle at the level of the least stringent scheme. Issues of environmental integrity and wealth distribution will be impacted in all linked schemes by the addition of a further partner. For this reason it would be expected that any linkage agreement would contain provisions requiring the agreement of existing linkage partners to the linking of another jurisdiction.

64 OECD 2002, *supra* note 4, at paragraph 3.1.
65 See note 35.
66 Linking to or between systems outside the Kyōto Protocol is feasible although not contributing to a negotiation of a global burden sharing regime: see TUERK et al., *supra* note 44, at 344–345.
67 STERK/SCHULE, *supra* note 6, at 426.
68 A. TUERK, ETCLIP – The challenge of the European carbon market: emission trading, carbon leakage and instruments to stabilize the CO2 price. Implications of linking on leakage. (WIFP Working Paper 410/2011).

It may also be the case that a new bilateral linkage agreement would need to be formed between any new partner and each of the pre-existing linked jurisdictions. Alternatively, it might be that the addition of a partner would be an opportunity to convert a bilateral linkage agreement into a multi-lateral agreement if the framework of the former does not readily permit the addition of another partner. Regardless of the mechanics of the arrangement the critical point is that linking will result in some loss of sovereignty by each government over future decisions in relation to a jurisdiction's ETS and, in particular, as to future linkage partners.

V. THE MECHANICS OF LINKING

Whilst a detailed consideration is outside the scope of this paper,[69] once the decision is made to link two systems it will be necessary to establish the legal framework to achieve the linkage. Bilateral linkage might be achieved through either an international treaty or through reciprocal domestic legislation accompanied by a memorandum of understanding or some form of co-operation agreement or acknowledgement.[70] Sub-national jurisdictions will not be able to enter into international treaties[71] and may be constrained from entering into binding agreements by virtue of Constitutional limitations in their powers. In such a case the option of reciprocated unilateral recognition might be considered. There would still be a need for some mutual recognition memorandum[72] but such an approach should circumvent any Constitutional limitations as well as provide greater flexibility (although less certainty and control). Ultimately with sub-national jurisdictions it will be important to identify the limitations imposed upon them in relation to entering into international agreements, whether any prohibition on creating laws inconsistent with the central government would be infringed and whether there might be a breach of any retention in the central government of a power to legislate in relation to commerce, especially with foreign entities.[73]

In terms of any agreement, the respective jurisdictions are likely to wish to ensure both a level of control and flexibility, especially as to future membership, and an ability to sever the arrangement with a minimum of market disruption. Greater formality should provide less scope for uncertainty. Nevertheless, some uncertainty is inevitable and given the potential adverse impact on markets it could be expected that quantity restrictions

69 On the mechanics of linking see: M. MEHLING/E. HAITES, Mechanisms for linking emissions trading schemes, in: Climate Policy 9.2 (2009) 169 and MACE et al., *supra* note 36, at chapter 4.

70 If possible any agreement should be established as a multi-lateral agreement or at least provide for the addition of future linkage partners in the expectation that additional linkage opportunities will arise in the future.

71 MACE et al., *supra* note 36, at paragraph 4.1.1.

72 See MACE et al., *supra* note 36, 8 at paragraph 4.3.2 for the possible elements of such a memorandum.

73 MACE et al., *supra* note 36, at paragraph 5.3.

might be imposed on the use of the other scheme's allowances with these restrictions gradually loosened as areas of uncertainty are resolved. Some supervisory mechanism to oversee the operation of the linked scheme and adjudicate over differences might be necessary. It may be prudent for the mechanism to require all changes to one ETS to be considered and approved by a body comprising representatives from each jurisdiction affected. Such a supranational mechanism might range from a loose cooperation between linked jurisdictions to an international organization endowed with formal powers, with the latter likely to evolve over time.[74]

In addition to the legal framework, the accounting and physical framework will need to be devised. Electronic linkage of the registries would be expected. Identification of eligible allowances may require some adjustment mechanism for different rights attached to allowances from the respective jurisdictions.

Ultimately, it could be expected that some harmonization will take place. In fact, the establishment of procedures to effect the linkage, such as notification and exchange of information procedures and processes for agreeing revisions and resolving disputes might blur the lines between the mere link of separate schemes and the creation of a single larger scheme.

Finally, any linkage agreement must also be forged in recognition of the general agreements on tariffs and trade ("GATT") and on trade in services ("GATS"). These agreements seek to facilitate free and transparent international trade and, in particular, prohibit discrimination on the basis of country or origin. It is conceivable that a linking agreement might raise an issue of discrimination, in particular by the recognition or refusal to recognize the emissions allowances of, or link with, a particular third country or otherwise placing restrictions on the trade in emissions allowances. An initial issue would be whether emissions allowances even fall within the international agreements. There is a strong case that they are neither products nor services within the meaning of the GATT and GATS.[75] In any event, measures implemented through a linkage agreement might be exempted as measures designed to protect the environment and hence "human, animal, or plant life or health".[76]

74 M. MEHLING, Linking of emissions trading schemes, in: Freestone/Streck (eds.), Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and beyond (Oxford 2009) at pages 122–124.

75 MACE et al., *supra* note 36, at paragraph 5.2.1.

76 GATT Article XX and GATS Article XIV. It has also been argued that an ETS that allocates allowances at no cost under the grandfathering method or does not enforce the terms under which allowances are granted would not breach the Agreement on Subsidies and Countervailing Measures ("SCM agreement"), although the issue is not free from doubt: MACE et al., *supra* note 36, at paragraph 5.2.4. Mehling also concludes that the free trade rules are unlikely to constrain linkages: MEHLING, *supra* note 74 at page 128.

VI. LINKING THE TMG EMISSION TRADING SCHEME

The commentary identifies that in considering the attractiveness of a prospective linkage partner the overarching considerations might be categorised as follows:

- the effect on the *environmental integrity* of the domestic regime,
- the *institutional compatibility* of the two regimes and the extent of engineering (and imposition of transaction and compliance costs on participants) to render them compatible,
- the extent to which the *economic efficiency* of the domestic regime will be enhanced, and
- whether differences in the two regimes raise *equity considerations* for residents of the respective jurisdictions.[77]

In addressing these considerations the design features of the respective ETSs need to be compared for compatibility. It has been suggested that the respective significance of the features of an ETS, from a linkage perspective, can be arranged in the following way:[78]

Design elements where consistency is *essential*

- absolute rather than intensity caps
- no ex-post adjustments of emission allowances
- no price caps and other cost containment measures
- no unconstrained borrowing
- continuance of trading system[79].

Design elements where consistency is *needed to reach political agreement*

- rules as to banking
- commitment periods
- comparable caps and stringency
- comparable (foreign and domestic) allowance and offset crediting rules[80]
- effective governance and enforcement.

Design elements that may differ where systems are equally stringent

- compliance periods and penalties
- monitoring, verification and reporting standards
- leakage control[81].

77 MACE et al., *supra* note 36.
78 Drawn generally from MACE et al., *supra* note 36.
79 MACE et al., *supra* note 36, at paragraph 3.4.5 (whether an ETS has a sunset clause or is temporary).
80 Some commentators suggest that similar rules relating to the recognition of credits are essential to linkage: BLYTH/BOSI, *supra* note 36, at paragraph 2.2.

Design elements where consistency is *desirable but not essential*

- sectoral coverage[82]
- allocation methodologies
- treatment of new entrants and business closure
- compatibility of registries.

The table below seeks to summarise the design features of the TMG ETS from a linkage perspective. The following discussion is loosely structured within this framework.

Table 1 – Summary of the design features of the TMG ETSs from a linkage perspective

DESIGN FEATURE	TMG ETS
Essential	
Type of target	Absolute
Ex-post adjustment	No
Price cap and/or market intervention (cost containment) measures	Emergency measures to release additional allowances.
Borrowing	Prohibited
Continuance	Ongoing
Needed for political agreement	
Banking	Limited to use in 2nd commitment period.
Commitment periods	Five years.
Target stringency	6/8% in the 1st commitment period. 15/17% for 2nd period (2015–2019). Concessions for entities implementing exceptional measures.
Limits on foreign allowances	No foreign allowances recognized.
Other domestic offsets/credits	Renewable energy credits, Tōkyō SME reduction credits, outside Tōkyō large entity reduction credits (from 1 April 2015), Saitama credits.
Level of compulsion, governance and enforcement	Mandatory (Bureau of the Environment ("BOE"))

81 Such as border adjustment taxes or concessions for trade exposed industries. See MACE et al., *supra* note 36, at paragraph 3.6.3 (identical measures need not be adopted so long as they preserve a comparable level of environmental integrity).

82 Mehling draws up a similar chart but sees similar sector coverage as more than desirable (not merely optional) and also adds fungibility of allowances as a desirable feature: MEHLING, *supra* note74, at 115.

DESIGN FEATURE	TMG ETS
May differ where equally stringent	
Compliance (trading) period	Annual (1 April–31 March)
Sanctions for shortfalls	Credits equal to 1.3 times the shortfall to be acquired plus fine up to 500,000 Yen and naming.
Monitoring, verification and reporting	Detailed reporting rules, independent registered verification agencies and competent BOE supervision.
Leakage control	None
Desirable but not essential	
Level of application	Downstream (large energy consumers)
Sector and gas coverage	Large consumers of fuels, heating and electricity in the TMG area. Primary focus on CO_2.
Allocation of allowances	Grandfathering (with limited updating)
New entrants and business closure	Detailed rules.
Registries and trading mechanism	Allowances measured in per tonne of CO_2. Online registry maintained by TMG. Tradable allowances on application following TMG verification of emissions reductions. Allowances up to half base year emissions tradable. Website and matching seminars to facilitate trade.
Other	
Kyōto Protocol (allowances shadowed by Kyōto units – i.e. convertible to ERUs)	No
Existing linkage partners	Saitama

Design Elements Where Consistency is Essential

Importantly the regime imposes absolute caps, does not allow for ex-post adjustments and is intended to continue indefinitely. However of undoubted concern to any perspective linkage partner would be the reservation of the right by TMG to implement cost containment measures should the price rise too high. At the same time TMG is concerned as to lowering the price of allowances if it links to another regime.[83] Notably the

83 An influx of low priced allowances is feared: see RUDOLPH/KAWAKATSU, *supra* note 18, citing interviews with BOE officials.

policy behind the TMG regime is predicated on a much higher price than, for example, the current EU price. However the ease with which the TMG caps have been met has meant that few trades have occurred and, with the large stock of excess reductions,[84] downwards pressure on the price in the future could be expected notwithstanding the original policy intent and inefficiencies in the market framework. As linkage with another scheme would contribute to this downwards pressure on price, the emergency conditions on which implementation of the cost containment measures is predicated would be unlikely to arise, although the mere existence of these measures could generate market uncertainty.

Design Elements Where Consistency is Needed to Reach Political Agreement

The TMG regime permits banked allowances from the first commitment period to be utilised in the second commitment period. It is not proposed at this stage, however, that the banking option be extended into the third commitment period and this may raise some compatibility issues. On the other hand, with the considerable bank of excess allowances the environmental integrity of the Tōkyō scheme is enhanced by this denial of the further carry-over of credits.

As to these commitment periods, the TMG creates five year periods and does not require reconciliation between emissions and allowances annually. The five year commitment period should limit the opportunity for TMG to game any linkage to the advantage of domestic businesses – that is, set weak caps thereby providing local entities with the opportunity for excess credits which might be sold to foreign entities.

The TMG first commitment period caps (set at a 6/8% emissions reduction) appeared reasonably stringent at the outset of the regime but in the event they have been easily achieved. The second commitment reductions from 2015 have increased to 15/17%. The level of stringency would clearly be an important consideration for a linking jurisdiction.

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84 Twenty two trades had occurred by December 2013: M. KANEKO, Tokyo cuts CO2 emissions but hoards credits, in: The Japan Times, 14 March 2014, available at *http://www.japantimes.co.jp/news/2014/03/14/national/tokyo-cuts-co-emissions-but-hoards-credits/*. The price details are kept secret (unless voluntarily declared by market participants) although there is report of one trade at 142 US$ per tonne: RUDOLPH/KAWAKATSU, *supra* note 18, at section 3.2. TMG records reveal that while no trades in excess allowances occurred during FY2011 (the first year of possible trading) one occurred in FY2012 (as at 28/2/13) with a further eight trades in other forms of credits. Nine entities did convert excess reductions into tradable credits. Two attempts to auction credits by the TMG met with limited success – there were no expressions of interest on the first advertised occasion and only one sale on the subsequent occasion (at 10,000 Yen per tonne). The TMG auctions are meant to provide a price signal – preferred at between 8,000 Yen to 10,000 Yen (80 US$ to 100 $) per tonne – based on survey information and an annual "matching" seminar. Furthermore, it is anticipated that the involvement of market place intermediaries will assist in establishing a market price. Notably no trades between Saitama and Tōkyō based entities had occurred as at April 2013: Meeting with TMG officials, 5 April 2013.

The ETS allows for offsets generated under certain domestic regimes. Whilst these regimes provide for supervision and verification the specifics would need to be assessed to the satisfaction of the other jurisdiction. The regime recognises allowances generated under the Saitama ETS.[85] Again a prospective linking jurisdiction would need to satisfy itself as to whether this indirect link was acceptable. The lack of sanctions supporting compliance with the Saitama regime might be a particular issue given the possible downwards influence on the price that can result from linkage to an, effectively, voluntary scheme.

Importantly, the TMG regime is mandatory and subject to stringent monitoring, reporting and verification rules enforced by TMG officials at the Bureau of the Environment with the assistance of third party verifiers.

Design Elements that May Differ Where Systems are Equally Stringent

Generally, political agreement to linkage may be more difficult where design features of the other regime provide competitive advantages and/or the potential for wealth transfers to entities within its jurisdiction. This is most likely where the other jurisdiction weighs cost containment more heavily over environmental impact thus reflecting a lower level of ambition in the design of its ETS. These design differences may not generate legal impediments to linkage, and any competition concerns are likely to exist irrespective of whether the regimes are linked, but the differing level of ambition may impact on the political will to link.

The TMG scheme has been recognised as fulfilling most of the requirements for a sustainable ETS. Suggestions for improvement have included extending gas and sector coverage, tightening the caps, phasing in auctions rather than grandfathering and freeing up the allowances market.[86] Other than the level of stringency reflected by the caps, these factors are not especially contentious from a linkage perspective.

Whilst the TMG regime requires annual reporting the need to reconcile emissions with allowances does not arise until the year following the five year commitment period. It is at that stage that most trading in TMG allowances might be expected. Thus cross-border purchases of allowances might be expected to be "lumpy" (after each annual reporting period or, more likely, at the end of the commitment period) rather than evenly spread, so possibly contributing to price fluctuations.

The penalty regime appears stringent. By virtue of the first level penalty for excess emissions being a requirement to purchase 1.3 times the amount of allowances that would otherwise have been required it is, thus, set by reference to the market price thus preventing the penalty from acting as a de facto price cap.

As noted above, the TMG regime is subject to stringent monitoring, reporting and verification.

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85 There is mutual recognition as TMG allowances may be relied on by Saitama based entities.
86 RUDOLPH/KAWAKATSU, *supra* note 18, at section 4.

It is conceivable that facilities operating within the jurisdiction of TMG might relocate, effecting carbon leakage. In the absence of similar regimes operating throughout Japan the only way this possibility might be mitigated would be for TMG to provide some concessions for types of facilities most able or likely to relocate. This does not seem practical though and might raise equity considerations. The absence of these concessions limits the opportunity for wealth transfers from linked regimes and the creation of competitive distortions favouring TMG entities over competitors resident in the linked jurisdiction although this later possibility would arise in any event irrespective of linking.

Design Elements Where Consistency is Desirable but not Essential

It has been suggested that due to the TMG regime operating as a downstream scheme, linkage to a scheme with an upstream bias would seem difficult.[87] Transactions across upstream and downstream regimes can present issues of 'doubling up' or regulatory gaps. For example, entities exporting coal and gas from an upstream jurisdiction to Tōkyō could (in the absence of exemptions or compensation) have been subject to an ETS on the basis that either they may have been liable to account for emissions directly or will have built into their cost structures increased charges levied by upstream entities (such as those generating power) arising from the need for these entities to account for emissions or may even be liable for emissions "embedded" within the substance acquired. At the same time the facilities subject to the TMG regime consuming energy (derived from the coal and gas) will also have to account for carbon emissions. Notably this is an issue regardless of linkage. In any event, the likelihood of doubling up in this example may be more perceived than real as the power utilities primarily importing the coal or gas are unlikely to be within the jurisdiction of TMG.

The downstream focus of the TMG regime, on large consumers of energy, results in its coverage extending primarily to commercial buildings, in particular, office towers,[88] a narrow sectoral coverage. Furthermore, almost the entire primary focus is on carbon dioxide emissions to the exclusion of other greenhouse gases. However, notably, the literature does not recognise any serious issues with linking regimes of differing sectoral and gas coverage.

The TMG regime adopts the grandfathering method of allocating allowances. Linkage to a regime with an auctioning system would have a wealth distributional impact, with TMG scheme participants likely to benefit. Some competitiveness issues could also arise.

87 See RUDOLPH/KAWAKATSU, *supra* note 18, citing interviews with BOE officials.
88 Around 80% buildings and the balance factories: BOE, *supra* note 15, page 11.

The TMG regime has developed detailed rules for the treatment of new entrants and business closure.[89]

As to register and trading system compatibility, TMG allowances are expressed in metric tonnes of carbon dioxide although various conversion factors are used and it could be expected that a linkage partner would need to be satisfied that these are sufficiently robust. The TMG system (relying on a website to provide for bilateral trades of allowances first certified by TMG as excess) is inefficient and would be expected to generate high transaction costs. The registration and online trading system could be further developed with compatibility in mind.

Other

Kyōto Protocol: Jurisdictions that remain parties to the *Kyōto Protocol* may wish to ensure that any allowances acquired from a foreign source are backed by Kyōto units which can then count towards the country's international emissions reduction obligations.[90] This could be problematic for a country formulating a link with TMG given Japan's decision to leave the Kyōto framework. In any event, it would not be clear how a sub-national entity, such as TMG, could effect a transfer of Japanese Kyōto units although, as noted above, a gateway mechanism, which provided a procedure to ensure that transfers from outside the Kyōto framework have Kyōto allowances attached and where transfers are made to entities outside the framework any attached Kyōto allowances are captured, might be employed.[91]

Potential linkage partners might be concerned that linkage to an ETS of a country which has no national emissions cap could also potentially contribute to a form of carbon leakage,[92] although Japan has reiterated her commitment to reduce emissions.

The Saitama link: Were TMG to wish to link with another regime then it may need to defer to Saitama for their position on any linkage proposal.

Philosophical Compatibility

It might be suggested that the TMG regime has a fundamental philosophical difference to a truly market based "allowances" regime premised on harnessing market forces to bring about emissions reductions. A truly market based regime would be expected to encompass both an initial allocation of allowances via auction together with an unfettered right to immediately trade in these allowances. In contrast, the TMG regime has

89 The structure of the TMG regime (especially free allocation and coverage dependent on consumption of energy not level of emissions) mandates the need for complex "new entrants" and "business slow down/closure" rules.

90 Linking to or between systems outside the *Kyōto Protocol* is feasible although not contributing to a negotiation of a global burden sharing regime: see TUERK et al., *supra* note 44, at 344–345.

91 STERK/SCHULE, *supra* note 6, at 426.

92 TUERK, *supra* note 68.

greater regulatory involvement and might be more aptly described as a "reductions" system. Reduction targets are specified and only if these are met to the satisfaction of TMG may any excess reductions then be converted to allowances which can be traded.

Essentially though, apart from timing issues as to when credits are available for trading (upon the initial allocation or acquisition versus upon application once excess reductions for an annual compliance period are verified) both approaches are focused on generating a financial incentive to reduce emissions. The "asset" that a TMG entity with verified excess reductions acquires may be disposed of to another entity, providing the recipient with a right to greater emissions. In this sense both approaches provide for trading in emissions allowances, only the TMG regime is post the event in the sense that an entity must already have a verifiable excess in emissions reductions rather than a mere expectation that it has excess allowances that it can trade.[93] It is suggested, therefore, that any philosophical differences should not amount to a barrier to linkage although it is conceded that the requirement for TMG to verify reductions prior to a tradable asset emerging and the subsequent mechanism for trading may hinder trades across a linked market.

Mechanics of the Linkage

A further consideration is the legal framework to achieve linkage. As discussed above, between national schemes the options are a binding international treaty or a non-binding political acknowledgement. Sub-national jurisdictions are unlikely to be able to enter into international treaties and may be constrained from entering into binding agreements by virtue of constitutional limitations on their powers in which case the option of reciprocated unilateral recognition and legislation might be considered.

Under the Japanese Constitution there is no express power in local governments to enter into an international treaty. Thus the preferred option for TMG might be a non-binding memorandum with a linking jurisdiction backed by reciprocal legislation. Arguably such an arrangement would not breach the Constitution as, in fact, the TMG ETS has been carefully crafted to avoid creating property rights, the province of the national government.[94]

Political Will

There are unlikely to be any legal obstacles to linking the TMG ETS that may not be resolved employing technical "fixes". However such "fixes" may require some com-

93 This philosophical difference is discussed further in J. DABNER, A comparison of the Australian and Tōkyō emissions trading schemes, in: Journal of Japanese Law 19 (2014) 3–28. The TMG approach may be attributable to the Constitutional limitations on TMG creating property rights. One implication is that the market takes a secondary role with the regime placing greater emphasis on reducing a particular entity's emissions rather than focusing on reductions by those entities where the marginal cost of abatement is lowest.

94 Ibid.

promise to the policy underlying each ETS and impose additional transaction and compliance costs. Thus, the extent to which these "fixes" are acceptable depends upon the political will to link.

Discussions with officials from the TMG in April 2013[95] revealed that little political will to link existed. The vision within TMG is that the TMG regime is the first of what will become a network of tier two ETSs implemented by local governments and major cities throughout Japan. These will support a first tier regime instigated by the national government, which regime would be a candidate for international linkages. However given the intransience of the national government to implement a fiscal response to climate change, notwithstanding over a decade of posturing, it must be queried as to whether this vision is achievable, at least in the short to medium term.

On the other hand, the TMG regime has set a global precedent for city jurisdictions. Already it has been replicated by Saitama leading to a linkage of the two domestic regimes. International linkage seems a natural evolution. However with many countries now looking at linking their new ETSs,[96] any delay by TMG means that it risks missing the opportunity to shape the emerging international regime. It might be expected that once an internationally linked scheme is in place it will be much more difficult for a prospective future entrant to influence its features.

It is understood that a further reason that TMG is hesitant to seek linkage partners is that whilst the carbon price is around 100 US$ per tonne in Tōkyō it is currently nearer 5 US$ per tonne in the world's biggest carbon market, the EU. TMG is concerned that the availability of cheap foreign credits would drive down the price in Tōkyō and lead to a reduced incentive to abate and less domestic reductions.

This may be a legitimate concern, from a domestic if not global perspective, but one that might also be ameliorated by placing limits on the amount of foreign credits that may be utilised with this limit reviewed on an ongoing basis. There are, in fact, precedents for this in the restriction placed by TMG on the proposed use of outside Tōkyō credits. A similar restriction might achieve a compromise between the pursuit of domestic policy considerations whilst also allowing TMG to be part of a global network.

Furthermore, it should be acknowledged that the free allocation of units rather than allocation by auction substantially offsets the cost imposed by the higher price. An additional "fix" that might serve to partially offset the loss of abatement incentive arising from any price reduction from the recognition of foreign allowances would be for TMG to auction allowances rather than embrace free allocation.

There is a further reason why TMG should consider linking and allow some convergence of the carbon price. One rationale for linkage is to achieve competitive equilibri-

95 Meeting with TMG officials, 5 April 2013.

96 At least with the EU: Australia, under the former government, Switzerland, New Zealand and, probably, South Korea. California and Quebec are also planning to link pursuant to the Western Climate Initiative.

um. Tōkyō based entities with an international clientele or competitors may suffer a competitive disadvantage if they face a carbon price far in excess of that experienced globally. The city is already branded as the most expensive in the world[97] and any additional cost differential imposed on Tōkyō based businesses will do nothing to enhance its world financial centre prospects and renewed export endeavours.

VII. CONCLUSION

Differences in design features of domestic ETSs are inevitable in the absence of a global standard, and, even then, local political considerations are likely to influence ETS design. Whilst these differences may generate competitive distortions between jurisdictions, few are such as to deny the ability to link regimes. In accommodating these differences, linkage may require adjustments at the margins to the domestic regimes or "fixes"[98] and so is likely to lead to a degree of harmonization. The ability to change a national system in the future would then need to accommodate the interests of linked partners.

Thus an issue for each jurisdiction is whether the surrender of some sovereignty over the freedom to design and modify its ETS is outweighed by the benefits from linkage. These benefits include greater market efficiency, more liquidity, enhanced abatement opportunities and, potentially, lower compliance costs.[99] A jurisdiction contemplating linking will also need to weigh up whether linking with a foreign regime will undermine the environmental effectiveness of the domestic regime to an unacceptable level. Domestic considerations, such as the likely effect on the carbon price of linking and its impact on business and the political acceptability of the proposed linkage partner, are also relevant. The latter might be a particular issue where (free) allowance allocation decisions in the other country provide competitive advantages over domestic businesses.

There is always a risk too that one jurisdiction may take the opportunity to enter into game playing to achieve a situation where the entities under its jurisdiction are likely to be advantaged financially from the link.[100]

For any government considering linking these are all questions of degree and tradeoff – a political decision as to whether the disadvantages and compliance costs associated with the link will outweigh the benefits on offer. Ultimately the issue is likely to come

97 E. HO, And the World's 10 most expensive cities of 2013 are, in: Time Newsfeed, 6 February 2013, available at *http://newsfeed.time.com/2013/02/06/and-the-worlds-10-most-expensive-cities-of-2013-are/*.

98 Although different rules as to the recognition of allowances may not be "fixable" as ultimately this is seen as a political issue: BLYTH/BOSI, *supra* note 36, at paragraph 2.2.

99 In ETS terms, compliance costs include both the direct cost of complying with emissions obligations and the transaction costs imposed on market participants. Thus, where gateway or other forms of cross border adjustments need to be implemented greater transactional compliance costs are conceivable.

100 See the discussion in FLACHSLAND et al., *supra* note 7.

down to whether both regimes are perceived to share a similar level of ambition in terms of environmental objectives.

This paper has identified the features of the TMG ETS and the potential issues with linking the regime to that of another jurisdiction. It has been demonstrated that linkage would seem technically feasible although presently little political will to link to a foreign jurisdiction exists.

SUMMARY

As part of its response to climate change the 1997 Kyōto Protocol envisages a global scheme with national emissions trading schemes ("ETS") linked to form an international market for carbon. In 2010 the Tōkyō Metropolitan Government ("TMG") established an ETS. This regime has some unique features that differentiate it so raising the question as to whether it could be effectively linked to other regimes. This is a particularly important issue given that the TMG regime is being promoted to other municipal governments as a blueprint for an ETS.

The principles called into play in considering whether regimes can be linked are well developed. This paper explores these principles in the context of the TMG regime to identify if any barriers to linkage may exist and, if so, what "fixes" might be available to facilitate linkage.

ZUSAMMENFASSUNG

Das Kyōto Protokoll von 1997 sieht einen globalen Plan für verbundene nationale Emissionshandelspläne (emissions trading schemes, "ETS") als Teil seiner Reaktion auf den Klimawandel vor, um einen internationalen Markt für Kohlenstoffdioxid zu schaffen. Die Regierung der Metropolregion von Tōkyō (Tōkyō Metropolitan Government, „TMG") hat im Jahre 2010 ein ETS eingeführt. Dieses Regime unterscheidet sich durch eine Reihe von besonderen Merkmalen von anderen Regimes, was die Frage aufwirft, ob es mit anderen Regimen überhaupt verbunden werden könnte. Diese Frage ist nicht zuletzt deshalb wichtig, weil das TMG-Regime als ETS-Modell für andere Kommunen beworben wird.

Die Grundsätze, die bei der Frage, ob Regime verbunden werden können, in der Diskussion stehen, sind gut entwickelt. Der Beitrag untersucht diese Grundsätze im Kontext des TMG-Regimen, um mögliche Hindernisse einer Verbindung mit anderen Regimen zu identifizieren, und, falls dies so sein sollte, welche Art von „Reparaturen" verfügbar wären, um Verbindungen zu ermöglichen.

(Die Redaktion)