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**Deloitte.**

Climate Change & Sustainability

# Design implications of linking emissions trading schemes and the impact on business



The response to climate change and the need to reduce greenhouse gas emissions is becoming one of the significant issues of national and international debate. In addition to the voluntary commitments of citizens and companies there are many measures undertaken by governments to regulate emissions or encourage reductions. Many are based on incentives and penalties to change behaviour. Among the most common broad based systems are:

- Systems of 'Cap and Trade' for emission allowances
- Emission reduction and credit schemes (offset schemes)
- Carbon Taxes
- Performance Standards
- Grants and incentives
- Reduction by regulation / rationing

These are often supported by 'complementary' measures such as:

- Disclosure standards
- Efficiency standards – fuel consumption, insulation
- Feed in tariffs

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The response to climate change and the need to reduce greenhouse gas emissions is becoming one of the significant issues of national and international debate.

While we are witnessing the development of a series of domestic national solutions to an issue that affects the whole global community, ultimately the long term goal must be for a universal, shared solution.

Inevitably in the short term countries need some flexibility to help manage the transition to a low carbon economy. However we have a one time opportunity to build into any global agreement the framework around which a common standard and approach can be developed.

If the near term future is linked national schemes the implications of linkages are increasingly important. In order to understand how this future might look this paper examines the issue of linking of systems that currently exist and identifies some of the benefits and risks to both business and to countries from linking schemes.

This paper therefore looks at the two types of system that can be linked—with other countries and with the other scheme type; cap and trade and emission reduction credit systems. It is difficult to imagine how tax systems could be linked—although a global taxing system could, in theory, operate. Consistency in complementary measures is also unlikely as these respond to country specific issues and in any event these are often transitional; they help countries get ahead of the cost curve.

Cap and trade and emissions reduction and credit are the systems that reflect the principals of the Kyoto Protocol. It is likely they will continue as the dominant types of systems for at least the foreseeable future.

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For business, a consistent approach with greater certainty is the most desirable answer. Operating in a business environment where there is an inconsistent basis of measurement, where some jurisdictions have a tax based approach and some a trading based approach, where there are widely differing prices and price volatilities and there are 'border adjustments' to account for these differences would make management of the exposures endlessly complex; planning for long term investments more challenging; and the orderly transition to a low carbon economy more difficult.

Linking of systems is therefore useful for business. This paper examines what different system design features make linking more or less possible and effective and what the impact of links is likely to be for business.

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For business, a consistent approach with greater certainty is the most desirable answer.

Linked systems would provide that credits, or allowance units<sup>1</sup> created under one system can be recognised by another. Linking can be unilateral—one jurisdiction recognises credits from another but this is not reciprocated—or bilateral—where both countries<sup>2</sup> mutually recognise each others credits and allowances.

Even in the case of unilateral linking the linked-in country must be an active participant and does not lose control of its Assigned Amount Units. They control the register and may refuse to record ownership of units outside the territory. For an explanation of the components of a cap and trade system see the earlier Deloitte paper 'Cap and Trade—the fundamentals.'

Links can also be direct—jurisdiction to jurisdiction—or indirect where two jurisdictions are linked via a third with which they both have linking arrangements even though they are themselves not linked.

And links can be within the overall framework of an international agreement, such as the Kyoto Protocol or with one party outside the agreement or with both parties outside.

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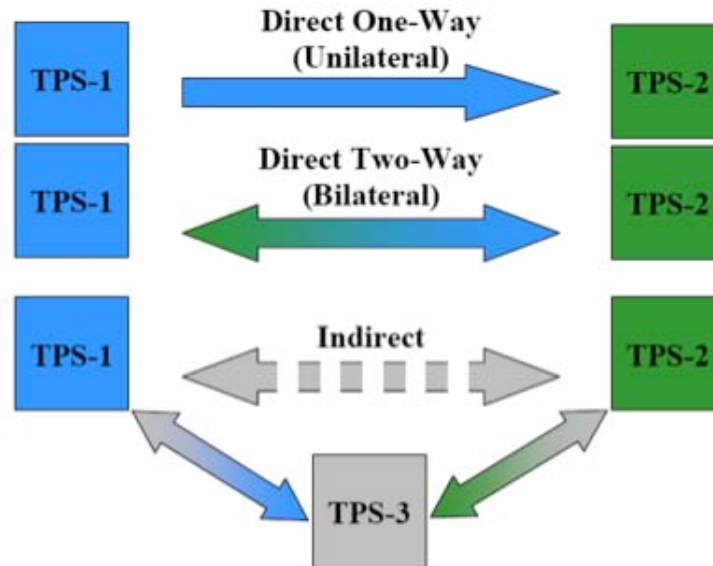
Linked systems would provide that credits, or allowance units<sup>1</sup> created under one system can be recognised by another.

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<sup>1</sup> Credits are created by the sequestration of carbon or avoidance of carbon emissions. Allowance units (units) are allocated based on historical emissions in a reference year or auctioned or sold on a secondary market. Both are typically measure as one tonne of carbon dioxide equivalent.

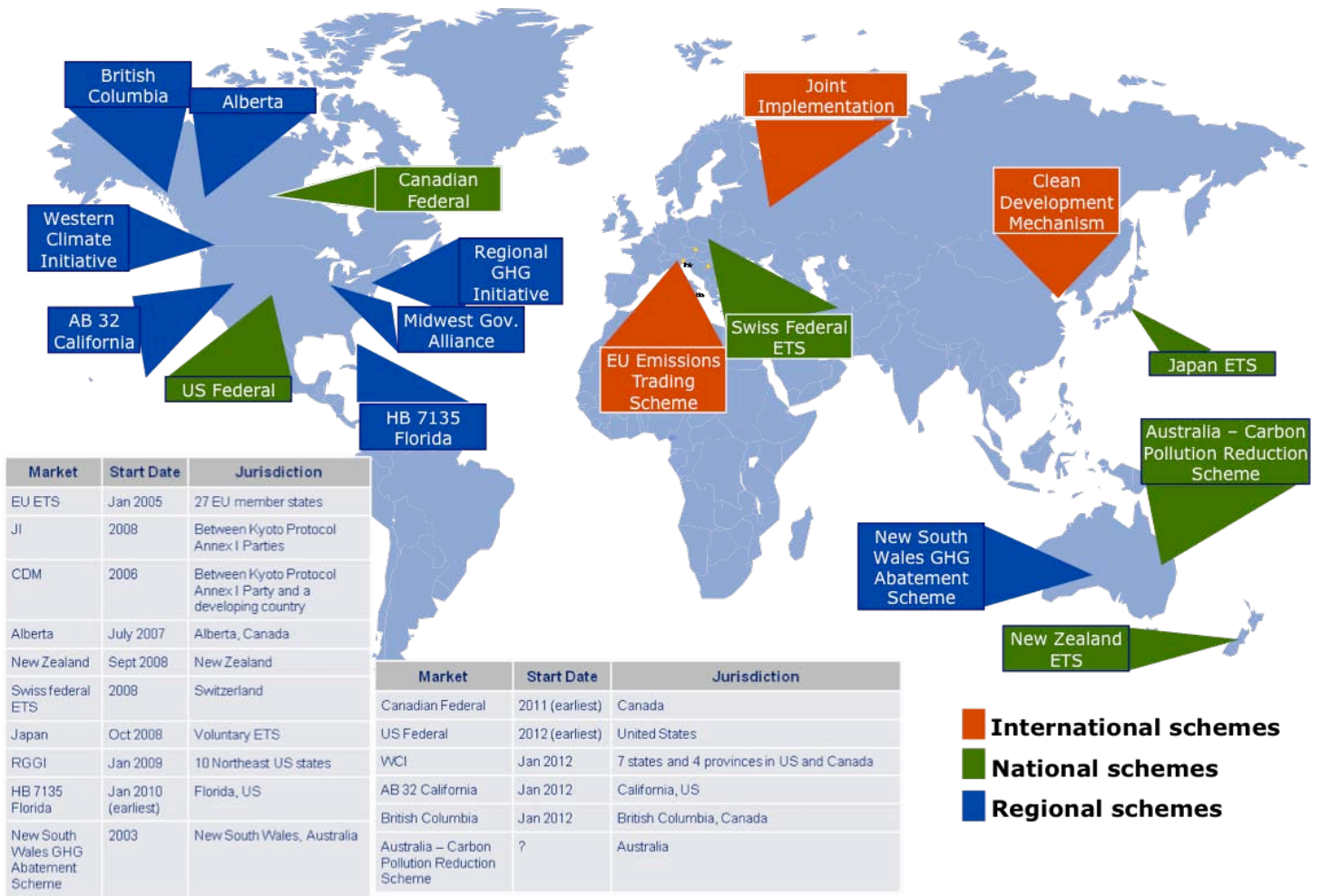
<sup>2</sup> For brevity this paper uses the term countries while recognising that some trading systems operate at a multi country level for example, the EU ETS.

**Figure 1. Types of Linkages between Tradable Permit Systems**  
(Arrows denote the allowed flow of credits or allowances between systems)



In designing a country system there are a number of design issues, some of which will be impacted by linking and may make the system more or less effective in meeting country GHG reduction obligations or objectives. These features are:

- Sectors included
- Greenhouse gasses included
- Points of regulation / obligation
- Stringency of reduction targets
- Use of intensity instead of absolute targets
- Allocation of free credits – if any – and the treatment of leakage
- Rules for new entrants, departures and closures
- Eligible offset credits
- Base periods against which reductions are compared
- Compliance periods
- Banking and borrowing
- Existence of price caps or floors
- Reporting and verification
- Compliance and enforcement



(Diagram from Linking Tradable Permit Systems for Greenhouse Gas Emissions: Opportunities, Implications, and Challenges,” by Judson Jaffe and Robert Stavins, November 2007

Links exist between the European ETS, the Norwegian ETS and the Clean Development Mechanism and are being contemplated between the New Zealand ETS, the Australian CPRS and some elements of the Clean Development Mechanism.

There are advantages and disadvantages to linking from a jurisdictional policy and a business perspective. At a 'big picture' level linked schemes provide a greater pool of credits and allowances and hence may reduce price volatility. The prices in linked schemes are more likely to be similar which would improve the ability to hedge across the schemes rather than separately.

The features of a scheme can be grouped in analysing the issues:

**Sectors included, the greenhouse gasses included, points of regulation / obligation and stringency of reduction targets**

These design features should have little impact on the ability to link provided the jurisdictions are operating within a wider international framework and are using national trading systems as a way of delegating national responsibility to business and citizens in order to encourage them to make GHG reductions. However, linking will have an impact on the price of allowances and credits which flows across the link to the connected market. In turn this may undermine the policy considerations which underlie the scheme design.

Difficulties may arise where there is a national imperative to encourage the reduction in emissions in one particular industry for competitive reasons or where a reduction beyond the international target is being imposed.

For business these can be fundamental issues when considering where to invest thus having an impact on long term competitive advantage.

**Use of intensity instead of absolute targets**

Use of intensity based targets makes linking difficult. Allocations are allocated after the completion of a period (whereas with absolute systems they are known at the start) and this can have impacts on liquidity since for absolute cap systems the allocation of units is known only the demand is uncertain (and is related to activity levels and efficiency). For intensity based systems both the allocation and the demand are unknown and both will be related to activity levels.

Intensity based systems also provide some incentive to increase production and would raise competition issues with businesses operating in an absolute regime—and potentially be considered a subsidy when compared to a global system with absolute targets.<sup>3</sup>

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At a 'big picture' level linked schemes provide a greater pool of credits and allowances and hence may reduce price volatility.

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<sup>3</sup> As inter country obligations are set at absolute amounts allocation of units on an intensity basis means that more units may be allocated to an industry than are assigned to the country for past emissions. This might be considered a subsidy when considered against an allocation on an absolute basis.

### **Allocation of free credits and the treatment of leakage; rules for new entrants and closures**

Rules for the allocation of free credits are not likely in and of themselves to affect the ability to link systems. However, these mechanisms are of course a source of intense interest in-country, as businesses address the challenges and opportunities of the transition to a low carbon economy. They may also be of interest between countries as these features are used as a basis of protecting trade exposed industries. The allocation of credits to new market entrants raises similar issues. Whether units remain allocated to closed plant will impact the pool of units and potentially the price but is unlikely to affect linking. It may help determine where plant closures take place.

So linking will not change the impact on business decisions these different rules create other than by any consequential change in the price of units.

### **Eligible offset credits and allowances**

This will have a significant impact. If for example one jurisdiction decides not to recognise a particular type of unit or credit and another does (for example 'hot air' AAUs or credits created from LULUCF)<sup>4</sup> then the use of these units or credits will leak across the link. The decision not to recognise particular credits or allowances, by one regulator as compared to another's, will therefore be undermined

There is also an issue for some countries about the transfer of resources to another country sometimes for credits of questionable effectiveness in GHG reduction. These effectiveness concerns can be minimised if there is a consensus as to an effective and reliable framework for reporting and verification.

In a Kyoto or other international framework this points to the importance of consistent application of the framework standards in each country. If this approach is followed such difficulties would be minimised.

### **Compliance periods, banking and borrowing**

Different compliance periods should not of themselves be a barrier to linking. Their effect is to improve liquidity and reduce volatility. The ability to bank units should also not be fatal to linking although if one country allows unlimited banking between vintages or even compliance periods and the other doesn't then the denial of the ability to bank in one country will be some what undermined.

While banking is not seen as fundamentally harmful unlimited borrowing is harmful.

Borrowing puts off the requirement to reduce to a future period and does not reflect the imperative to reduce now. If one country allowed unlimited borrowing and a linked jurisdiction did not it is likely that this rule would transfer across the link with undesirable outcomes. As Kyoto does not allow borrowing the cost would likely be borne by the country allowing borrowing.

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<sup>4</sup> 'Hot Air AAUs' are Assigned Amount Units allocated to countries based on past emissions where emissions reductions have occurred for reasons other than a plan to address climate change. The most common example would be Russian credits which are allocated based on heavy industry which collapsed during economic reforms. LULUCF credits are those given based on emissions reductions or carbon sequestration from Land Use, Land Use Change and Forestry. In some countries there is a reluctance to recognise these credits because of permanence and measurement uncertainty.

### **Existence of price caps or floors**

Price caps or floors make linking very problematic. Effectively the price cap or floor in one country will be exported to the other but, in a Kyoto world, the cost (the difference say between the cap and a market price) will be born by the country establishing the cap or floor.

Such mechanisms may also negatively impact the country that has not set a cap as incentives to other market recipients for absolute reductions or sequestration will be reduced. Equally a floor may impose costs on that countries businesses that might not otherwise exist.

### **Reporting and verification, compliance and enforcement**

Consistency of reporting and the reliability of reported emissions data are fundamental to the ability of trade based schemes to link. In a Kyoto linked world where country schemes are a mechanism to help that country meet its Kyoto obligations it is likely that measurement bases will be consistent. A unit would be a unit no matter where created. Outside the Kyoto?? framework great care needs to be taken to ensure units are consistently defined and measured as a tonne is a tonne only if subject to the same rules and verification standards. This is reflected in the very different prices for soil sequestration credits, versus Certified Emission Reductions, for example.

Currently the wide variances in verification compliance and enforcement standards are problematic. Greater efforts need to be made as otherwise ineffective or misstated units will undermine the impact of their use in linked systems. There is also a real and perceived risk of fraudulent credits.

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Consistency of reporting and the reliability of reported emissions data are fundamental to the ability of trade based schemes to link.

From a business perspective in general, linking is a useful step in the journey to a truly global market. As identified above the outcome is to:

- Reduce price volatility
- Use market mechanisms to reduce some in-country carbon prices and overall provide for greater carbon reduction efficiency by using up the lowest cost abatements (as these are available across borders providing greater market access)
- Avoid distortions in carbon price in particular markets and the negative impact of politically motivated decisions
- Simplify overall risk management and hedging strategies
- Provide a more consistent basis for investment decisions.

However, there will be occasions where a particular business can lose their competitive advantage because of their relative carbon positioning in specific countries which should drive reassessment of their business strategy

Overall business will look for simplicity and consistency in the rules and reliability of information. Many of the difficulties for countries identified above are removed if in-country rules are simple and consistent. While this might be too much to ask for in the short term while we are managing the transition, it should be the long term goal of climate negotiations

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From a business perspective in general, linking is a useful step in the journey to a truly global market.

For countries and business there are significant overall advantages for linking various schemes, providing the risks outlined above are managed. Linked schemes simplify risk management and hedging strategies and should reduce price volatility.

There will be impacts—both positive and negative—for business depending on whether it is a net buyer or seller of units in a given jurisdiction and on the position of its competitors. It is likely that countries will only link if it is to their advantage, for example because of a lower cost of compliance, reduced volatility, or the creation of opportunities to sell credits or allowances for economic advantage.

Overall however linking is a useful strategy on the path to a global and consistent carbon market. A consistent approach to all the design features identified will make the steps to a complete global integration that much easier.

This paper does identify the importance of consistent measurement and verification of carbon credits as being a key feature for linking emissions trading systems and ultimately for the development of reliable global markets.

## References

This summary has drawn on the report on linking GHG emissions Trading Systems, funded by IETA and EPRI, “Linking Tradable Permit Systems for Greenhouse Gas Emissions: Opportunities, Implications, and Challenges” by Judson Jaffe and Robert Stavins, November 2007, and the Harvard Kennedy School paper Linkage of Tradable Permit Systems in International Climate Policy Architecture also by Judson Jaffe and Robert Stavins and “Linking Emissions Trading Schemes” from Climate Policy (various authors) published by Earthscan

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