Designing Institutions, Structures and Mechanisms to Facilitate the Linking of Emissions Trading Schemes

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1 Introduction

The option of linking emissions trading schemes (ETS) across jurisdictions is not only a particularly attractive feature of an ETS, it is also unique. For any other climate policy instrument, governments can at best agree to coordinate their efforts, e.g. to eliminate fossil fuel subsidies in a parallel effort, or to charge minimum tax rates – but the policies and their implementation will remain entirely domestic. In the case of linked ETS, climate policy becomes a joint effort of all linked parties, where certain changes made to one ETS will have effects on all other linked ETS.

The idea of linking ETS across boundaries is attractive because it offers multiple advantages, both economic and political. Economically speaking, linking expands the size of the market, bringing together more emitters with different marginal abatement costs – thus allowing for gains from trade and achieving the same level of emission mitigation at lower cost. In addition, the enlargement of the market may increase liquidity and reduce market power of individual actors and price volatility. Likewise, there may be economy of scale benefits for both regulators and covered entities if institutional infrastructure can be used in both systems. Last, but not least, linking offers the prospect of emitters in all participating jurisdictions facing a comparable carbon price, thus eliminating the risk of carbon leakage between participating jurisdictions. But there are also political advantages: above all, linking ETS represents a strong joint commitment towards climate action, which may help to overcome the fear of an alleged first-mover-disadvantage that is regularly raised as an argument against more ambitious unilateral climate action.

Yet, attractive as it may be, linking ETS also presents its own, particular challenges. Above all, it makes the linked parties mutually dependent on each others' policy choices. Once the ETS are linked, changes to certain design elements in one system will affect all linked systems. It is therefore necessary to ensure such changes are decided in a consensual way, or at least after prior consultation. If this cannot be ensured, the only alternative is to undo the link (temporarily or permanently), which would incur a high political cost, severely damage the confidence of market participants, and be administratively cumbersome.

Entering a commitment that will be hard to undo requires above all trust and goodwill, but also a solid set of rules and procedures that all parties need to follow. Effectively, the linked ETS become a joint policy instrument, which requires joint governance mechanisms. There are different ways how this governance can be achieved: for certain aspects, it will be sufficient if all parties agree to keep each other informed of relevant developments, other aspects will require at least consultation of other parties, but there may even be aspects where a joint decision is required, or where an independent organization is mandated to carry out certain functions or implement certain decisions.

There are precedents for such joint governance mechanisms, where one country accepts to be directly affected by regulations adopted in another country. This is the case, for instance, in many trade agreements, where parties agree to mutually recognize each other's standards: if a product has been found to comply with one country's standards, it can also be sold in another country. And yet, emission allowances are different from other commodities, in that the carbon market is entirely a political creation. Unlike most other markets, the emission allowances owe their value entirely to the political commitment to create a limited supply of allowances, and to ensure that every emitter has to surrender sufficient allowances to cover their emissions. Because of this inherently political nature of the traded commodity, the joint governance becomes all the more essential for the functioning of the linked scheme.

Against this background, this paper investigates the options for governance of linked ETS. Chapter 2 looks at selected examples, either of actual linking agreements, or of comparable situations in other fields where analogous solutions were developed and implemented. Chapter 3 describes the design options and building blocks of a linking agreement, as the central document that lays out the joint governance of linked ETS. Chapter 4 discusses institutions, structures and mechanisms for the joint governance of linked ETS, describing which governance approaches are most suitable for which aspects and design elements of an ETS. Chapter 5 looks at options to extend the linking agreement to include further parties, and Chapter 6 gives an overview of ways to suspend or terminate a linking agreement. Finally, Chapter 7 draws conclusions. [1]

1 The authors would like to thank several reviewers for their constructive criticism and for their helpful comments, suggestions and ideas: Anja Hentschel, Assistant Professor of Public Law at the University of Luzern, Fitsum Tiche, PhD candidate at the University of Groningen, Alexandra Zirkel and Claudia Gibis at the German Emissions Trading Authority (DEHSt) and Angelika Smuda at the German Federal Ministry of Environment, Nature Conservation, Building and Nuclear Safety.

2 Governance Structures and Institutions: Examples from Existing International Agreements

While a global ETS remains elusive for the time being, a number of links between ETS have been established at national and sub-national level, and further links are under negotiation. Existing linking arrangements can, potentially, provide useful examples for governance elements and legal specifications that future linking arrangements may want to follow or adapt to their circumstances.

In this context, the notion of governance encompasses elements required to adequately operate and, where needed, enforce a linking arrangement. Robust governance of a link between two or more ETS may necessitate provisions on a number of issues, including:

- Routine operations: Provisions on the routine operation of the linking arrangement, covering aspects such as information sharing, decision-making processes, monitoring and reporting, compliance, overall harmonization;
- Institutional arrangements: Institutional mandates and procedures for joint institutions;
- Dispute settlement procedures or procedures for the resolution of differences;
- Change management, i.e. provisions on the rights and duties of parties arising from any developments which may disrupt the link or have other negative effects on the linked system and its parties, for instance when one party plans or implements amendments within its system which affect (or potentially affect) the operation of the link;
- Amendment, expansion of, withdrawal from or mutual termination of the linking arrangement.

What this section will provide is an evaluation of existing linking agreements with a view to their approaches to the abovementioned governance elements. Selected approaches will be explained in greater detail, highlighting particularly interesting or unique elements rather than aiming for a comprehensive description of all elements. In terms of scope, the analysis covers the full breadth of possible linking designs and thus addresses national and sub-national arrangements, bilateral and multilateral arrangements, and binding and non-binding approaches.

Because the number of linking arrangements between ETS is still limited, the analysis will also include selected agreements drawn from other sectors and contexts. What underlies their inclusion is the fact that agreements to link ETS have certain features in common with other arrangements that involve a mutual recognition of specific decisions and procedures (Gerstetter et al. 2014: 8). As a result, such arrangements contain provisions for situations which are similar to those potentially encountered under a link between two or more ETS. Trade agreements, for example, have some analogy to linking arrangements in that they aim for the establishment of a mutually beneficial market for products and services – but also in the sense that policy decisions in one jurisdiction affect other jurisdictions that are linked through a common market.

2.1 Overview of Linking Agreements Currently in Force

The following table provides an overview of the linking agreement that is currently in force between California and Québec, as well as the arrangements in place between the RGGI member states as well as between the EU and the EEA states Norway, Iceland and Liechtenstein.[2] Additionally, to the extent information is available, it addresses the EU ETS-Switzerland linking agreement that is currently being negotiated, and the abandoned EU ETS-Australia agreement. A detailed discussion of the linking arrangements in these jurisdictions can be found in chapter 9.1 (RGGI), 9.2 (California-Québec), and 9.3 (EU-EEA, EU-Switzerland and EU-Australia).

2 For the sake of linguistic simplicity, all three examples are referred to as "linking agreements" here. In fact, as section 3.1.1 discusses in greater detail, they represent different types of formalising cooperation between two or more ETS: while the California-Québec case is a straightforward example of two formerly independent ETS linking up, in the case of RGGI it is a matter of judgement whether it is considered as one single ETS, or should be seen as a cluster of nine linked but legally separate and technically independent, state-level ETS. In the case of the EU-Norway, Iceland and Liechtenstein, the point can be made that they were simply included in the EU ETS through an expansion of its regional scope.

There are some commonalities and differences between these five cases:

- The two North American links are each based on Memoranda of Understanding, providing less detailed rules and lacking a formally binding character, while the European links are all based on international treaties (or in the case of Australia, was supposed to have been based on one). This, of course, is above all due to the fact that the respective North American jurisdictions lack the legal capacity to enter into a binding international agreement. As the case of RGGI illustrates, however, although the MoU is not formally binding – it is still the case that those who want to participate in RGGI have to comply with all rules of the model agreement.
- All five cases feature a high degree of harmonization between the linked schemes – in some cases there is such close harmonization that the link essentially amounts to an extension of the scope of the larger linking partner (as is the case for Norway, Iceland, Liechtenstein; but also for states joining RGGI). In both cases, the substantive rules of all linked systems are virtually identical. This also means that new members wanting to join the club have to abide with all existing rules and regulations – thus, linking is not a genuine process of negotiating which rules should be harmonized, and in which direction harmonization should occur.
- In the cases of RGGI as well as the EEA states, the schemes were developed with the clear commitment to link. While they might be based on separate state or national legislation, and thus formally capable of existing independent of the linked partners, the schemes were for all practical purposes set up in order to be linked. In the cases of Switzerland and Quebec – as well as Australia – the option of linking was also part of the ETS development from the outset, yet the schemes were set up as stand-alone mechanisms, and (except Australia) have worked independently for some time.
- Except for RGGI, which is a hybrid between a centralized ETS and linked, decentralized ETS, most linking arrangements link ETS with a profound difference in size – in terms of emissions covered, the caps of the linked systems differ at least by a factor of six (in the case of California-Québec, with caps of 394.5 and 65.3 Mt CO_2, respectively), and more in other jurisdictions. Thus, in all cases except RGGI, the constellation was that of a large partner linking up with a much smaller ETS, creating a certain difference in power.
- There is less evidence on the institutional and procedural provisions – as these are / were not finalised in the cases of the EU-Switzerland and EU-Australia links. The two North American links both build on shared institutional infrastructure (RGGI, Inc. and WCI, Inc.) with dedicated private not-for-profit bodies that act as service providers for all linked partners. The EU-EEA link, by contrast, builds on the EEA agreement and the rules, procedures and institutions established therein. Thus, the EEA agreement that serves as a standard framework for the cooperation between the EU and the EEA member countries is extended to include matters related to the ETS, and a dedicated Advisory Committee is established to support the existing institutions under the EEA agreement with the administration of the link.

Table 1: Overview of Key Provisions in the Existing and Evolving Linking Agreements

Linked Systems	Effective Date	Type	Mechanism	Institutional Provisions	Procedural Provisions	Substantive Provisions
RGGI	1 January 2009	Full multilateral link	Non-binding model rule and MoU	Multi-state working group RGGI, Inc. and subcontractor: Market Monitor	Accession and withdrawal procedure	MoU and Model Rule set out design recommendations for entire system, ensuring a high degree of harmonization across participating jurisdictions
California / Québec	1 January 2014	Full bilateral link	Non-binding linking agreement and Memorandum of Understanding	Consultation Committee Staff Workgroups on: Joint registry (TSWG); joint auctions (AMWG); general management (MWG) WCI, Inc. and subcontractors: Auction Administrator, Financial Services Administrator and Market Monitor	Consultations on ETS changes Consultations on harmonization of offset protocols, joint auctions and registry Information sharing on supervision and enforcement, market integrity and public announcements	Both jurisdictions are participants in the WCI, and thus have aligned their ETS design with the WCI design recommendations for cap-and-trade, ensuring a high degree of harmonization across participating jurisdictions. Adjustments prior to linking were therefore limited to: ▸ Auction reserve price ▸ Auction exchange rate
EU ETS / EEA (inclusion of EEA States)	1 January 2008	Full multilateral link	EEA Joint Committee Decision	EFTA Advisory Committee created to assist EFTA Surveillance Authority	EFTA states to provide information for Art. 30 EU ETS Directive Review	Near-fully harmonized provisions on all major aspects (including on compliance, MRV, cap-setting, scope and coverage, allocation, use of offsets etc.) only minor adjustments (e.g. waiver of auctioning limits, opt-out of Icelandic combustion installations) Non-discrimination clause in the event of further links
EU ETS / Switzerland	N.A. (negotiations ongoing)	Full bilateral link	Binding international treaty	Not finalized yet	Not finalized yet	In preparation of link: Switzerland has introduced mandatory participation, an aggregate, absolute cap and changed its enforcement regime. Additionally, its ETS design is largely aligned with the EU ETS in terms of cap, scope and coverage, MRV rules and allocation provisions Once linked, Swiss power generators would be included in ETS Role of aviation still unclear
EU ETS / Australia	N.A. (negotiations abandoned)	Unilateral link from Australia originally scheduled for 1 July 2015 Full bilateral link originally scheduled for 1 July 2018	Binding international treaty	Not finalized Proposed indirect registry link from 1 July 2015, and direct registry link from 1 July 2018	Not finalized Consultation process on joint registry arrangements	ETS system designs differed, necessitating adjustments in preparation of linking: Australia removed its price floor, applied quantitative restriction to Kyoto units, and adjusted price ceiling Linking agreement would address MRV, eligible 3rd party units, land-based offsets, competitiveness safeguards, and market oversight provisions. Preparatory work also addressed registry cooperation.

2.2 Overview of Key Provisions in the Analysed Agreements

The following table summarizes the findings on some key provisions in seven agreements and treaties that were analyzed in greater detail, focusing on provisions for routine operation (e.g. information sharing), on institutional arrangements, dispute settlement, and change management. A more detailed description of the agreements, their structure and function, as well as discussion of their relevance for the purposes of developing linking agreements, can be found in the Annex (chapter 9).

Table 2: Overview of Key Provisions in the Analyzed Agreements

	Routine Operation	Institutional Arrangements	Dispute Settlement	Change Management
RGGI MoU	Mostly standard provisions, such as those in Sec. 6 (monitoring and review of RGGI compliance; implementation of appropriate measures to mitigate emissions; taking technically sound measures to prevent leakage; monitoring procedures)	Important rules for the institutional functioning of RGGI, e.g. Sec. 4 (regional organization RGGI Inc. to administer various aspects/non-profit corporation; multi-state working group; independent market monitor); additional functions such as carrying out the quarterly allowance auctions have been assigned to RGGI Inc. since its establishment	No dispute settlement mechanism	Practically relevant rules, e.g. Sec. 5 (Addition or Removal of Signatory States); Sec. 5.B (Withdrawal); Sec. 8 (Amendment); made use of in practice, e.g. to add Maryland as a Signatory State or allow for the withdrawal of New Jersey
CA-QC Linking Agreement	Mostly standard provisions, however, given the agreement's political nature, with particular emphasis on consultations etc., e.g. Articles 1a, 1f, 3, 4, 14 (regulatory harmonization; sharing of information; workgroups; consultations and cooperative efforts at harmonization; confidentiality of sensitive information)	Very elaborate rules, allowing for operating the agreement through several levels of governance, see e.g. Articles 3, 11, 12 (coordination of administrative and technical support through the WCI, Inc.; staff workgroups to discuss specific aspects of implementation; Consultation Committee mandated with monitoring the implementation of all harmonization and integration efforts); institutionalized platforms for the technical level (Compliance Instrument Tracking System Service and platform for the joint auctioning of allowances)	Dispute settlement pursuant to Article 4 (Regulatory Harmonization; consultations for any differences) and Article 18 (Resolution of Differences)	Criteria and procedures for a link are set out in the WCI MoU (s. Annex 9.2.1); Article 16 (Withdrawal Procedure); Article 17 (Amendments and Third Parties)
EEA Agreement	Elaborate rules on cooperation, e.g. Article 3 (appropriate measures to ensure fulfilment of the obligations; facilitation of cooperation) and Part VI (Articles 78-88)	Important institutional rules, of relevance in practice, see e.g. Articles 89-95 (EEA Council; Joint Committee, Joint Parliamentary Committee)	Elaborate provisions allowing for a balancing of interests of the EU and EFTA states, Part VII Chapter 3 Section 3 EEA (settlement of disputes concerning the interpretation or application before the Joint Committee); Article 111.3 (Court of Justice)	Elaborate approach and rules, respecting the sovereignty of the signatory states, see Article 97 (Right of Contracting Party to amend its internal legislation); Article 112, 113 (Right to take appropriate measures in the event that serious economic, societal or environmental difficulties arise); Article 127 (conditions and procedure of withdrawal)

	Routine Operation	Institutional Arrangements	Dispute Settlement	Change Management
US-Canada Air Quality Agreement	Standard, general provisions, Article XI (general consultation requirements); Article V (Assessment, Notification and mitigation); Article VII (information exchange requirements)	Standard, basic provisions, Article VIII (Air Quality Committee); Article IX (International Joint Commission)	Basic provision, Article XIII (negotiations to settlement; right to dispute settlement before the International Joint Commission or another agreed form of dispute resolution)	Standard rules: Article XVI (entry into force, amendment, termination)
NAAEC	Standard rules, such as on general commitments (Article 2), or Article 20.1 (cooperation and consultations to resolve any matter that might affect the operation); Article 20.2-4 (Information requirements)	Elaborate rules, e.g. Articles 8ff. (Commission for Environmental Cooperation (CEC), comprised of a Council, a Secretariat entrusted i.a. with the review of submissions from the civil society, and a Joint Public Advisory Committee and awarded with broad oversight functions; Articles 16 and 17 (Joint Public Advisory Committee, including members of civil society)	Elaborate rules on promoting public participating: Article 14-15 (citizen's submission process); standard rules on consultations: Article 22.4 (mutually satisfactory resolution of the matter through consultations); elaborate rules for the settlement of disputes Part Five (party-to-party disputes); Article 24 (arbitral panel)	Standard rules: Articles 48-50 (amendment of, accession to and withdrawal from the Agreement)
NAFTA	Elaborate rules, e.g. e.g. Article 909.9, 1019, 1907.3 and Articles 723, 914, 1413, 2006 (Information sharing and consultation requirements)	Elaborate rules with great practical relevance and providing for several committees and working groups, e.g. Article 2001 (Free Trade Commission comprising cabinet-level representatives of the Parties or their designees; Other committees, e.g. Committee on Agricultural Trade, Article 706; Committee on Standards-Related Measures, Article 913	Detailed provisions regulating different constellations: Chapter 20 (resolution of disputes between parties); Article 2005 (alternative dispute settlement forum: GATT dispute settlement system); Chapter 19 (Review and Dispute Settlement in Antidumping and Countervailing Duty Matters); Articles 1118ff. (Settlement of Disputes between a Party and an Investor of another Party)	Detailed rules: Article 2202 (amendments); Article 2203 (entry into force); Article 2204 (accession); Article 2205 (withdrawal); Chapter 18 (publication and administration of laws, "precautionary clause"); Article 907(3) (unlike GATT, temporary trade restrictive measures to ensure compliance with domestic environmental standards)

	Routine Operation	Institutional Arrangements	Dispute Settlement	Change Management
KORUS Agreement	Numerous detailed provisions consultation requirements, e.g. Article 19.7 (Labor Consultations) and Article 20.9 (Environmental Consultations and Panel Procedure)	Standard provisions: Joint Committee (Article 22.2); Article 2.14.1 of Section F (Committee on Trade in Goods); Councils on specific matters (e.g. labour or environment, Articles 19.5 and 20.6)	Detailed provisions regulating different constellations: Chapter 22, Section B (resolution of state-to-state disputes); Article 22.3 (cooperation and consultations to arrive at a mutually satisfactory resolution of any matter that might affect its operation); settlement of labour disputes (Chapter 19), environmental disputes (Chapter 20), and alternative procedures for disputes concerning motor vehicles (Annex 22-A); investor-state dispute settlement mechanism (Chapter 11, Section B).	Standard rules: e.g. Articles 24.2, 24.3, 24.4, 24.5 (amendments, reactions to amendments of the WTO Agreement, rules on accession and the entry into force and termination); Article 2.13 (modifications to national laws)

2.3 Observations on Governance Structures found in Relevant Agreements and MoUs

Generally, examined agreements and arrangements reflect the friendly relations that exist between the Parties involved: the Preamble to the EEA Agreement, for example, refers to the "proximity, long-standing common values and European identity", NAFTA's preamble emphasizes the "the special bonds of friendship and cooperation among their nations" and KORUS reiterates the "longstanding and strong partnership." A survey of existing links also shows that successful bi- or multilateral linking has largely occurred between jurisdictions already engaged in a process of regional economic or political integration, such as the EEA and NAFTA, rendering such cooperative fora elsewhere a probable indicator of the readiness for future linking.

In view of the governance elements highlighted in the introduction, it should first be noted that all examined agreements, regardless of whether they relate to an ETS or not, contain standard provisions on the routine operation of the arrangement, although the respective level of detail varies. Involved parties will primarily aim to establish a system that can run reliably and ensures a robust and transparent routine operation of the system.

Naturally, given that the examined MoUs, but also the (relatively old) Air Quality Agreement of 1991, are much shorter than other analysed agreements, their rules for routine operation are also generally less elaborate. Overall, consultations and information sharing are the most important means for ensuring the smooth operation of agreements. Provisions for information sharing need to address confidentiality issues (addressed, for example, in the California-Québec Agreement or the Air Quality Agreement). In some cases, information requirements apply before Parties adopt certain changes (e.g. NAAEC, KORUS), which is also of relevance for the governance element here referred to as "change management".

Furthermore, monitoring and reporting requirements are frequently addressed. Generally, strong monitoring and reporting requirements are necessary to ensure the environmental effectiveness of any ETS (Flachsland et al. 2008: 43; Schüle/Sterk 2008: 22) and thus also crucial for the integrity of the overall linked system, making them an important consideration in any linking agreement (ICAP 2014). Consequently, provisions on MRV would also have been an element of the EU ETS-Australia linking agreement (Australian Government/European Commission 2012).

The RGGI MoU makes the connection between the integrity of the system and robust monitoring requirements particularly clear in Section 6.A.6. Monitoring and reporting provisions are also of relevance in the context of market manipulation (WCI 2010a: 18).

Some of the analysed agreements and MoUs also address future changes and the on-going need for harmonization of the systems in question. The California-Québec Agreement, for example, explicitly refers to harmonization requirements as both linked systems continue to evolve over time, with a view to securing their compatibility going forward and also keeping the link itself up-to-date. Likewise, some arrangements envision future linking possibilities with other ETS-systems (see, for example, WCI MoU).

Institutional arrangements providing joint support services have been established under all examined agreements. This is an expected outcome of the examination, given that institutional structures of some nature are necessary for the governance and operation of a system (Prag et al. 2012: 7). Again, the complexity, structure and functions of the respective institutional arrangements vary, and are as much a function of the number of participating jurisdictions and the complexity of their interactions as they are related to the depth and historical extent of prior economic or political cooperation. Some agreements such as the Air Quality Agreement establish one institution (the Air Quality Committee), while others have a more complex institutional setting comprising several bodies (e.g. the EEA Agreement's Council and Joint Committee). Pre-existing institutional structures are often incorporated into a linking arrangement, for example with Article 11 of the California-Québec Agreement drawing on WCI, Inc., or the EEA Joint Committee Decision on extension of the EU ETS to EFTA countries empowering the EFTA Surveillance Authority. Typically, the institutions are composed of representatives of the parties (see, for example, Article 12 of the California-Québec Agreement, Article 9.1 NAAEC, Article 2001.1 NAFTA, and Article VIII Air Quality Agreement). For the EU, the EEA Joint Committee could represent a suitable model for institutional arrangements in ETS linking agreements (e.g. in the future EU-Switzerland linking agreement).

Further institutional arrangements provide for institutionalised working groups. Under RGGI, these also enhance public participation through the involvement of experts and stakeholders (see 6.A.1.a RGGI MoU). Also the Joint Public Advisory Committee comprises members of the civil society and aims to promote public participation and promote public access to information (Phillips 2014: 9).

As far as dispute settlement mechanisms and general resolution of differences are concerned, there are considerable differences between the examined agreements. Generally, the examined treaties (EEA Agreement, Air Quality Agreement, NAAEC, NAFTA, KORUS) contain complex dispute settlement mechanisms. Some (e.g. KORUS, NAFTA) have separate dispute settlement mechanisms in place, for example for state-state or investor-state disputes. Also, the linking agreement between the EU and Switzerland is likely to include dispute settlement provisions. A noteworthy feature of the dispute settlement mechanisms is the emphasis on prior consultations (see, for example, Article 22.1 NAAEC, Article 2003 NAFTA, Article 1118 NAFTA, and Article 22.3 KORUS). According to the agreements, these are clearly preferable to the initiation of dispute settlement mechanisms, which should serve as a last resort only.

In contrast, the examined MoUs do not include elaborate dispute settlement mechanisms. Instead, it seems that these agreements emphasize constructive and cooperative approaches throughout the agreement (see, for example, the California-Québec Agreement). Differences between national systems and the Parties shall be addressed through consultations (see Articles 4 and 18 of the California-Québec Agreement).

Less common than other governance elements are elements dealing with "change management", such as rights and duties parties have when the other party plans or implements amendments within its system which affect or may potentially affect the operation of the system, or in light of external or internal (disruptive) factors and parameters. Parties might wish to prepare for unforeseen, unexpected and more unusual circumstances, occurring both at their own national or sub-national level, in the sphere of participating parties, or at an entirely different (e.g. global) level. Some linking arrangements or other instruments therefore contain rules on the rights and duties of parties in such constellations.

Only few agreements address such issues of change management. Article 97 of the EEA Agreement, for instance, highlights the right for each Contracting Party to amend its internal legislation in the areas covered by this Agreement upon the prior provision of information to the other parties.

Articles 112-114 EEA Agreement deal with safeguard measures a party may take if "serious economic, societal or environmental difficulties of a sectorial or regional nature liable to persist" arise (Article 112.1) and the rights the other parties have to react to such safeguard measures by taking proportionate rebalancing measures (Article 114.1).

The KORUS Agreement regulates constellations in which a party that makes modifications to its own laws must notify these to the other party after the modifications have been made (see Article 2.13.3). Furthermore, it addresses amendments to the WTO Agreement, stating that "if any provision of the WTO Agreement that the Parties have incorporated into this Agreement is amended, the Parties shall consult to consider amending the relevant provision of this Agreement, as appropriate, in accordance with Article 24.2" [3](Article 24.3 KORUS).

Under NAFTA, "laws, regulations, procedures and administrative rulings of general application respecting any matter covered by [NAFTA]" shall also be "promptly published or otherwise made available in such a manner as to enable interested persons and Parties to become acquainted with them" (Article 1802(1) NAFTA). Furthermore, such measures shall also be published in advance and interested persons and Parties shall have a reasonable opportunity to comment on such proposed measures to the extent possible (Article 1802(2) NAFTA).

Finally, as far as governance elements for the amendment, expansion of, withdrawal from or mutual termination of the linking arrangement are concerned, it can be observed that relevant rules enshrined in the examined agreements are similar and the rules contained therein are not particularly noteworthy or innovative. Chapter 22 NAFTA, the rules in Article 24 KORUS Agreement, Article XI Air Quality Agreement or Section 8 of the RGGI MoU, for example, contain standard provisions dealing with the amendment, expansion of, withdrawal from, or mutual termination of the contractual arrangement. The WCI Design Recommendations specifically state that an expansion of the arrangement should take effect from the beginning of a new compliance period (WCI 2008: 13). Generally, however, it is noteworthy that MoUs appear to be easier to withdraw from, making amendments necessary (including cap adjustments, as under RGGI when New Jersey withdrew from the MoU). However, at the same time, the MoU structure provides for a relatively uncomplicated expansion of the arrangement (e.g. when RGGI was expanded to include Maryland). Greater flexibility of MoUs can be considered an advantage. In contrast, treaties are predictable and transparent (Hawkins/Jegou 2014: 28), yet also often subject to lengthy and complicated negotiations (e.g. EU-ETS-Switzerland negotiations or the EU-ETS-Australia negotiations).

Regarding identified differences between the treaties and MoUs, it can be concluded that the fact that individual states enact appropriate reciprocal state regulations if they wish to participate in schemes like RGGI or WCI (Prag et al. 2012: 13) provides for a certain degree of legal certainty. Aspects such as enforcement and compliance are then dealt with on the basis of the reciprocal legislation and administered by national bodies (e.g. the ARB in California) (RGGI, 2010b; Prag et al. 2012: 39).

While one could argue that only a formal international treaty provides full legal certainty because it binds acceding jurisdictions, whereas a domestic legislature or regulator only subject to an informal MoU may choose to unilaterally change its national legal framework anytime, experience has suggested that the distinction may not bear as much weight in practice: for one, because of their binding nature formal treaties will by necessity include provisions on unilateral withdrawal or termination, reintroducing an element of uncertainty; otherwise no legislature would be willing to formally ratify the accompanying concession of sovereignty. And second, other legal channels may endow non-binding cooperative arrangements with more resilience than their informal nature would suggest. For instance, the lawsuit filed against New Jersey at the state level shows that the system of state legislation adopted to implement RGGI makes it more difficult to withdraw from voluntary linking arrangements. Additionally, domestic constitutional and administrative law may place restrictions on the freedom of states seeking to withdraw from linking arrangements, once such implementing rules and regulations have been elaborated and entered into force, for instance through constitutional doctrines protecting the legitimate expectations and interests of ETS participants (Rodriguez/Dobbins 2014).

3 Article 24.2 KORUS Agreement (Amendments): "The Parties may agree, in writing, to amend this Agreement. An amendment shall enter into force after the Parties exchange written notifications certifying that they have completed their respective applicable legal requirements and procedures, on such date as the Parties may agree."

Considering that regional sub-federal systems like RGGI or WCI could in fact not be established on the basis of an international treaty, given that the federate states do not constitute subjects of international law and are subject to constitutional restrictions such as the supremacy clause (see for details, for example, Zetterberg 2012: 11/12 or Mace et al. 2008: 74; Lenz et al. 2014: 316; Ranson/Stavins 2013: 15), it can be held that MoUs do not so much provide a suitable alternative, but are in fact the only possible instrument for federate states aiming to establish an ETS linking arrangement. In addition, they are also used as a predecessor to a full linking agreement. At the time when Australia was still planning to link a national emissions trading scheme to other systems, including the EU ETS, Australia and California signed an MoU to share information on the design and implementation of their carbon markets, which was meant to facilitate an eventual future link (Environmental Finance 2014). This "Memorandum of Understanding between the Clean Energy Regulator and the California Air Resources Board" of 2013 identified "areas of collaboration that can be undertaken from primarily a market-based program operational perspective that will mutually benefit each Participant in its efforts to address climate change" (1.2 MoU).

However, the constitutional restrictions make it difficult to link subnational systems with the EU ETS. In the context of the negotiations with Australia and Switzerland, respectively, the EU does not consider linking via an MoU a viable option, but rather pursues linking through international treaties. In theory, the EU could however link through MoUs (Lenz et al. 2014: 315).

A further observation is that pre-existing similarities between ETS systems make it easier to adopt a linking agreement (e.g. in the case of California-Québec), particularly where systems were developed in tandem, or adjusted to ensure greater compatibility. Generally, prior to the adoption of the examined linking arrangements, the common procedure was that the smaller system adapts to the larger system, and the newer to the older one (Switzerland, Norway and Australia adapted to the EU-ETS).

3 Design Options for Linking Agreements

3.1 Definitions

3.1.1 What Is "Linking"?

Numerous definitions of linking have been brought forward to date, and they tend to share a set of common features. On a general level, emissions trading schemes are linked if a participant in one scheme can use a carbon unit issued under another scheme to meet compliance obligations (Haites, 2003: 5). Thus, as a result of linking, units are considered eligible for compliance purposes without requiring some form of individual review and approval prior to each transaction (Stewart et al., 2001:9). "Use" in this definition is a functional term tied to compliance, and does not necessarily require physical possession of the foreign unit to harness its compliance purpose (see Section 3.1.2); conversely, mere ownership or trade in foreign units for purposes other than compliance, such as speculation or arbitrage, does not indicate a link unless said units are eligible to meet compliance obligations. In its most basic rendition, thus, a link can consist of a simple provision stating the equivalence of foreign units.

A conceptual distinction – albeit with only limited practical significance – can become necessary in the case of already integrated jurisdictions, for instance under a regional organization of economic integration. When two or more ETS in such jurisdictions evolve under a common regulatory framework or set of legislative guidelines, it can become difficult to distinguish whether the emerging market resulted from a single ETS covering several jurisdictions, or whether it is the product of several independent, but linked ETS.

One important criterion are the traded units themselves: if several jurisdictions have agreed to facilitate cross-border trading in one and the same unit, as is, for instance, the case in the EU ETS with its uniform EUA, it strongly indicates the existence of a single ETS covering several jurisdictions; such uniform markets do not emerge through linking of separate ETS, nor is it conceivable that they could become separate ETS if their participating jurisdictions were to de-link. Aside from the use of a common trading unit, this is also due to the existence of central institutions and central decision-making and enforcement procedures,[4] as well as the mandatory nature of the underlying and the degree of design and implementation flexibility afforded within the overarching framework: where covered jurisdictions have no or only very limited discretion as to whether and how they set up an ETS within their territory, it also suggests that the resulting market is the result of one coherent ETS.[5]

Even then, however, borderline cases – such as RGGI – will still defy straightforward categorization. But definitions aside, either alternative will give rise to similar institutional and governance challenges and potential solutions.

3.1.2 Allowing Flow of Units

Although at the heart of any link, recognition of foreign units alone does not suffice to enable actual trading. For transactions to occur between linked systems, the eligibility of units also needs to be operationalized in practice, for instance by allowing the flow of units across systems (Mace et al., 2008: 3) or otherwise ensuring that units acquired in another system can be surrendered for domestic compliance purposes. Different approaches are conceivable to facilitate the use of units across ETS, with the most comprehensive being the creation of a joint registry or the connection of registries across systems to permit the direct transfer of units from accounts of participants in one ETS to the accounts of participants in another ETS.[6] In some cases, however, a joint registry or directly connected registries may not be feasible or desirable, for instance when there are concerns about ceding control over ETS operation, or the link is being established unilaterally.[7] In such cases, the flow of units can also be accomplished through a mechanism whereby units are purchased and cancelled in one system, and a corresponding amount of units is issued in another system (Roßnagel, 2008: 397), an option that is simplified if foreign entities are able to open and maintain accounts in each linked system (for details: see Commonwealth of Australia/European Commission 2013: 17-23).[8] Finally, market participants might also engage in purely private activities that have repercussions across two or more ETS, for instance by engaging in arbitrage activities across systems (Haites et al., 2001: 72).[9]

3.1.3 Type of Linking Arrangement

A link between ETS can assume various forms, with differences in degree, scope, and the direction of trading flows. Certain legal implications will depend on what type of link is implemented, highlighting the importance of a careful distinction. Conceptually, a link can be either direct or indirect, with direct linking conditional on an explicit decision by at least one of the linked jurisdictions (Jaffe et al., 2007: 11). Direct links allow trade both within and between different systems (Ellis et al., 2008: 8), moreover, and can be further distinguished on account of whether they allow trading in one or more directions.

4 If this is the primary criterion, the EU ETS could have been described as a linked system of national ETS in the early trading phases, as a majority of institutions (such as registries) and decisions (such as national allocation plans) were still taken at the Member State level; from the third trading period onward, however, central decision making powers and institutional structures have been centralized, such as the allocation process and common registry. In the cases of RGGI and the WCI, applying this criterion is more ambiguous, as participating jurisdictions share a number of institutions (such as RGGI, Inc. and WCI, Inc.) and implement central operational aspects such as auctioning and the registry jointly.

5 Accordingly, the EU ETS would likely be considered a single ETS because its adoption is mandatory for Member States, and the majority of design features are already specified in great detail in EU legislation. Meanwhile, under RGGI or the WCI, the common regulatory framework for the ETS is based on non-binding documents (RGGI Model Rule and WCI Design Documents), and the harmonization of design features or use of common institutional structures purely voluntary. Hence, the ETS emerging under RGGI and the WCI could be considered linked systems.

6 Currently, this approach has been implemented in the EEA, in RGGI and between California and Québec; it will also be the approach likely to be used between the EU and Switzerland, and would have characterized the envisioned link between the EU and Australia after 1 July 2018.

7 It bears noting, however, that even a unilateral link can be implemented cooperatively and with a direct electronic registry connection. While the transfer of allowances could go both ways, only one jurisdiction would accept foreign allowances for compliance purposes.

8 This option was proposed for the interim link between Australia and the EU from 1 July 2015 to 30 June 2018. It would have involved creation of an account in the EU registry by the Australian government to serve as the gateway for EU allowances purchased by Australian operators (see below, Annex, Sec. 9.3.4).

9 In such cases, even where the jurisdictions have not established a link, participants with market positions and compliance obligations in both jurisdictions might enter a bilateral transaction where one participant decides to transfer units to another participant in one ETS in return for obtaining a commensurate amount of units from that participant in another ETS. For instance, a multinational company with operations both in the EU ETS and in the Californian ETS might choose to sell allowances in the EU (e.g. because its operations in the EU are long on allowances, or a price decline is expected) in order to purchase allowances in California (e.g. because its operations in California are short allowances, or a price increase is expected); while there is no formal link between the two ETS, let alone a way for allowances to flow across systems, the decision will have an impact on supply and demand – and hence on prices – in each system. Still, such cases are likely to be very limited, and would not achieve most of the benefits ascribed to a formal link.

In theory, the greatest economic benefits will follow from a bilateral or multilateral link, in which two or more jurisdictions agree on the mutual recognition of units and trade can occur in either direction across systems (Mehling et al., 2009: 181), be it by way of fully connected registries, or by way of a procedure that allows units to be purchased and cancelled[10] in one ETS, and then issued and used for compliance or trading in another system.

Direct linking does not necessarily require that two or more jurisdictions recognize each other's units for compliance purposes, however. Instead, a link can also be unilateral, meaning that only one jurisdiction is willing to recognize units from one or more foreign systems. While such unilateral linking can occur in a cooperative setting and even involve a direct registry connection,[11] one of its attractions is that it can be implemented without prior negotiations or procedural commitment, especially when the registry of the ETS to be linked allows foreign natural or legal persons to acquire and hold units. Unilateral linking has been envisioned or implemented in several ETS,[12] and is also the type of link commonly used to allow offset credits from external crediting systems, such as the CDM (Mehling/Haites 2009: 172-173).

Unlike direct links, indirect links can evolve between systems even absent an explicit linking decision. An indirect link occurs when one system (A) links to another system (B), which in turn maintains a link to a third system (C). In this case, an indirect link is established between systems A and C, irrespective of whether the links are uni- or bilateral. Developments in one system will still affect the supply and demand for units, and hence their price, in each other system (Mehling et al., 2009: 171). The following analysis will focus on direct linking, however, because that is where the principal governance and regulatory challenges lie.

3.2 Form of Linking Arrangement

As noted above (Section 3.1.1), in its most basic form the creation of a link between an ETS and another carbon market presupposes the recognition of carbon units from that market. Although this may differ from jurisdiction to jurisdiction based on the prevailing constitutional framework and legal culture, the complexity, scale and economic implications of an ETS will generally call for its implementation through one or more acts of statutory legislation, complemented by substatutory regulations and technical guidelines. It is this legal framework which also defines the carbon units that may be used for compliance, and hence the creation of a link will first and foremost necessitate an adjustment of the catalog of eligible units. Whether this requires a formal legislative amendment (with the attendant procedure) or merely an adjustment of technical rules, such as registry regulations,[13] depends on how the ETS is legally implemented in the first place and may have significant implications for the practicability and timeline of the linking process.[14]

For a purely unilateral link, the foregoing adjustment of domestic rules on eligible compliance units, along with any administrative measures required for its implementation, may already be sufficient. Whenever the link is to be bi- or multilateral, or involve some other form of cooperation between the affected ETS, the question of form becomes substantially more complex. An overview of available options and their implications is provided in the following.

10 Alternatively, such units could be held in a gateway, or clearinghouse, as long as they are valid in the originating system; that would allow entities from the purchasing jurisdiction to sell back units to the originating jurisdiction, up to the amount previously purchased and held in the gateway or clearinghouse, see above, 3.1.2, and Roßnagel, 2008. For the original proposal of this concept, intended as an AAU clearinghouse to facilitate linkage between states with quantified emission limitation and reduction obligations under Annex B of the Kyoto Protocol, and states with no such commitments, see Sterk et al., 2006: 36.

11 A unilateral link allowing EU allowances to be used for compliance in Australia was considered from 1 July 2015 to 30 June 2018, and one option under consideration was a direct registry connection to facilitate the transfer of allowances, where the net flow would have been unidirectional (Commonwealth of Australia/European Commission 2013: 17-25).

12 Until the end of 2006, the Chicago Climate Exchange (CCX) was unilaterally linked to the EU ETS, allowing CCX participants to use EUAs for compliance; likewise, prior to its 2013 revision, the RGGI Model Rule foresaw the possibility of introducing units from other ETS if the market value of allowances exceeded a certain benchmark price, see RGGI Model Rule (pre-2013), Sec. XX-10.3 (b) (1).

13 An example of the various substatutory regulations which would have required amendment for the interim unilateral link between Australia and the EU to become operational is provided on the Internet at: http://www.climatechange.gov.au/reducing-carbon/consultations/registry-arrangements-facilitate-linking-eu-emissions-trading-system.

14 If an amendment of core statutory law is needed, the formal procedure, which may define stakeholder participation rights, set out demanding voting thresholds and afford multiple entry points for political discussion and special interest lobbying, may prove a practical obstacle to linking; hence, a legislative technique to afford greater flexibility in the linking process may be to include a broad mandate and set out general conditions for linking in core legislation, but leave the enumeration of eligible units to substatutory regulations, such as a registry regulation. It should be borne in mind, however, that formal procedures have a purpose, increasing the transparency and legitimacy of the outcome, and hence an expedited procedure should not primarily serve to avoid the democratic process.

3.2.1 Bilateral or Multilateral Agreement

In a bilateral or multilateral link, the recognition of allowances must be mutual so as to allow trading flows in more than one direction. As a result, these links will generally necessitate some form of coordination between ETS to synchronize the required adjustments, ranging from the mere decision to simultaneously accept foreign units for compliance purposes to more ambitious levels of integration, such as an agreement upon the trajectory of reduction obligations in each system (Jaffe et al., 2007: 51). Different legal forms are available to implement such a decision. Outside the specific context of a supranational organization, such as a regional organization of economic integration like the EU (see below, 3.3), a negotiated understanding will only be binding on the linked jurisdictions if it meets the formal requirements of an international treaty.[15] As one of the recognized sources of international law,[16] a treaty is an expression of state sovereignty bounded by voluntary consent, and is governed by international law in relation to its validity, application, interpretation and enforceability. Failure to observe the terms set out under the treaty counts as a breach of international law, incurring consequences under the treaty itself and customary international law as well as the possibility of countermeasures.

Due to their formal and binding nature, treaties offer a transparent and predictable framework for transactions across linked trading schemes; yet they are also subject to a number of constraints. Only formal subjects of international law may enter into treaties, notably sovereign states and international organizations; by default, regional and local entities, such as the constituent units of a federation, will be excluded unless otherwise specified in the national constitution (Aust, 2007: 23). In a majority of cases, the adoption of international treaties—and especially multilateral treaties—also entails a cumbersome and often challenging ratification process, with restrictions set out both under international law and in domestic constitutions or organizational mandates. Likewise, a withdrawal from the treaty and subsequent amendments are subject to formal constraints, implying that any provision for adjustment or suspension of the link, for instance to account for changing circumstances, needs to already be included in the treaty from the outset (Haites et al., 2009: 474-5).

It is often argued that a binding treaty is likely to achieve the highest degree of market integration. In contrast to traditional commodities, carbon markets are highly vulnerable to uncertainty, and price volatility in response to political developments has been a central challenge in existing markets such as the EU ETS. Consequently, the predictability afforded by a formal, legally binding linking instrument harbors the promise of improved confidence in the permanence of the link and hence in the linked market. Beyond sustaining a credible link, moreover, a treaty is also a suitable vehicle to embed institutional structures for administration of the link. As the number of linked systems increases and with them the complexity of governing the ensuing market, moreover, centralized institutions and a harmonized common governance framework offer the benefit of greater scalability than multiple bilateral links. At that point, negotiation and adoption of a formal treaty is likely to be necessary in order to confer the required powers for a joint institution, and provide it with a robust mandate. It also bears mentioning that, despite – or because of – the cumbersome procedure for their adoption, treaties arguably carry greater legitimacy than less formal instruments, a consideration that is not trivial given the distributional impacts of climate mitigation policies. Notwithstanding these multiple benefits, the historical record has also shown that negotiation of a formal linking agreement can be very time-consuming and harbor significant obstacles, while those links based on informal arrangements have proven relatively successful to date. With a view to this observation, alternatives to a formal and legally binding linking agreement are discussed in the next section.

Although no example of a binding linking agreement is currently available, the negotiation history as well as insights garnered from general treaty design and treaty regimes in other areas (see Section 2) provide useful indications about likely elements of such an agreement. Given the binding nature, certain provisions become indispensable for the viability of a link by way of a formal linking agreement, notably clauses regarding the procedures for its entry into force, for its amendment and for suspension of, termination of, or withdrawal from the link. Also, functional considerations will normally prompt the inclusion of standard treaty provisions, setting out definitions, objectives, and other general provisions typically found in treaties.

15 In theory, jurisdictions could also enter into a private law contract, setting out rights and duties of each party as well as civil penalties for a breach of contractual obligations. In practice, however, because of the political nature of the topic and the uncertainties associated with having a sovereign entity as party to the contract, this option is unlikely to be very attractive. It has, however, found some degree of application in the context of RGGI and WCI, where the jurisdictions have contracted private entities to carry out many of the governance tasks in the joint carbon market.

16 See Statute of the International Court of Justice (adopted 26 June 1945, entered into force 24 October 1945) (1945) AJIL Supp. 39: 215, Art. 38(1).

Possible Structure of a Formal Bi- or Multilateral Linking Agreement

Preamble
Art. 1: Objectives
Art. 2: Definitions
Art. 3: General Obligations of Parties
Art. 4: Recognition of Units
Art. 5: Information and Notification Duties
Art. 6: Shared Institutions
Art. 7: Monitoring and Review
Art. 8: Consultations and Public Participation
Art. 9: Data Protection and Confidentiality
Art. 10: Emergency Measures
Art. 11: Dispute Settlement
Art. 12: Entry into Force
Art. 13: Amendments
Art. 14: Suspension and Termination
Art. 15: Withdrawal
Art. 16: Accession of Additional Parties

Finally, the agreement will contain substantive provisions related to the link, which will likely include a clause on recognition of carbon units as the centerpiece of the link, provisions setting out design adjustments for improved harmonization, procedural clauses on information sharing, consultations, and so forth, institutional provisions about newly created or existing institutions to manage and facilitate the link, and provisions on dispute settlement as well as additional links with third parties. Where new institutions are established, the agreement might already set out an institutional mandate, or refer to a separate charter detailing the mission, substantive responsibilities, and governance of such an institution. While purely hypothetical, the structure below captures a possible structure of a linking agreement, reflecting the foregoing elements (based on Mace et al. 2008).

3.2.2 Reciprocal Unilateral Arrangement

A unilateral link can be established through inclusion of a clause in the architecture of each trading system, specifying the conditions for recognition of foreign units. Unless otherwise specified, the procedures for adoption and its legal nature will follow the instrument constituting the system, which is, in most cases, formal statutory legislation. Because the clause establishing the link remains within the remit of national jurisdiction, the link can also be unilaterally altered or terminated at any point in time. Absent some form of international commitment, the implementing entity will not be bound by its decision to create a link. Where some degree of mutual coordination is desired without sacrificing flexibility and domestic sovereignty, the link can be created by way of a political understanding about the conditions for mutual recognition of carbon units, coupled with domestic legislation implementing this understanding into each system. In legal terms, this alternative will be similar to the unilateral link described earlier, albeit with the difference that affected jurisdictions will establish unilateral links simultaneously and on a reciprocal basis.

At the level of implementation, in other words, the link will still be based on an adjustment to the instruments establishing each ETS. A “reciprocal unilateral link” thus has the benefit of obviating lengthy ratification procedures and avoiding other restrictions imposed by international law, such as the exclusion of jurisdictions other than sovereign states; moreover, it leaves each system with the flexibility to terminate the link or adapt it to changing circumstances as needed. Coordination between markets can then be achieved through informal negotiations, or - at a slightly more formal level - by way of a Memorandum of Understanding (Aust, 2007: 32) and technical standards. Still, while they document a common intent and desired outcome, each of these options lacks the binding power of a formal commitment; consequently, the link will only remain operational as long as parties find it expedient, and may experience sudden adjustments or even suspension by one of the participating jurisdictions (see chapter 6).

Possible Structure of a Memorandum of Understanding

Preamble
Art. 1: Objectives
Art. 2: Definitions
Art. 3: Mutual Recognition of Units
Art. 4: Consultation Process
Art. 5: Regulatory Harmonization
Art. 6: Joint Institutions and Procedures
Art. 7: Administrative and Technical Support
Art. 8: Jurisdiction
Art. 9: Confidentiality of Information
Art. 10: Public Announcements
Art. 11: Withdrawal Procedure
Art. 12: Amendments and Third Parties
Art. 13: Resolution of Differences
Art. 14: Communications
Art. 15: Validity

Without prior notice, such abrupt changes can have a significant impact on the market for carbon units and the broader economies of participating jurisdictions (Mace et al., 2008: 75-6). Where the legal certainty and transparency offered by reciprocal legislation is insufficient, yet parties still want to retain flexibility in the subsequent administration of the market link, hybrid solutions may be considered, where an "umbrella treaty" sets out general principles and minimum conditions for a link (the "what"), but leaves the specification of technical and operational details (the "how") to domestic legislation or substatutory regulation. Drawing on the California-Québec Agreement, the structure below illustrates what a memorandum of understanding facilitating reciprocal unilateral linking could contain.

3.2.3 Role of Political and Economic Integration

Given that a central feature of existing linking arrangements revolves around harmonization of design features and the creation of joint institutional frameworks, it stands to reason that geographical proximity or prior integration efforts between prospective linking partners, for instance under the auspices of a regional organization or treaty regime such as the EU, the EEA or NAFTA, would greatly facilitate the establishment of a link. Experience with actual links to date also suggests that prior economic and political cooperation is a favorable factor: the link between the EU and the EEA countries Norway, Iceland and Liechtenstein, for instance, as well as the link between California and Québec were each able to build on layers of pre-existing cooperation, such as the institutions set up to facilitate trade liberalization in the EEA, or the cooperative framework of the WCI. Evidence suggest that a greater degree of pre-existing cooperation also translates into more compatible trading systems from the outset, requiring fewer adjustments before they can be linked.

Experience has also shown, however, that geographical proximity nor a legacy of close economic and political cooperation are neither a condition for linking, as evidenced in the negotiations between the EU and Australia,[17] nor a guarantee of a successful link, as shown by the substantial challenges encountered in aligning the Swiss ETS and the EU ETS. Even very specific design features – such as the inclusion of a single contentious sector – as well as unrelated political developments – such as the Swiss referendum on immigration policy – can derail or slow down the negotiations on linking.

17 The negotiations over the EU-Australian linking agreement may also serve to highlight the importance of the domestic political context of the negotiating parties. On the Australian side, the political backdrop was one of highly partisan climate politics in Australia that cast doubt on the political sustainability of the CPM. The Labor-led government (and its allies in Parliament – The Greens) were all too aware about the risk of policy reversal due to the then upcoming 2013 federal election. The linking agreement with the EU was thus an exercise of embedding the CPM in an international agreement and making it administratively more cumbersome and politically more costly to unravel. It is plausible to infer that this desire to politically and legally bind the CPM to the EU ETS will have increased the Australian government's willingness to accept proposed changes to the CPM demanded or desired by the EU.

Hence, generalizations are risky, and one might at best infer that, ceteris paribus, prior cooperation through a regional regime of regional economic integration may favor linking. One reason for this assumption is that politically and economically aligned jurisdictions are more likely to share views on the design of an ETS as well as the importance of climate change mitigation and the ambition of policy responses. Second, a history of regulatory cooperation enhances confidence in the administrative capacities of the other jurisdiction, and it also means that there will often be shared institutions and procedures (e.g. related to information exchange), as well as a legal basis for cooperation on which the linking agreement can build. And third, existing regulatory cooperation may also imply that there are already harmonized or compatible regulatory approaches in other fields related to ETS operation (e.g. energy market regulation or air pollution regulation). Yet it remains only a flanking factor among many more directly relevant determinants, and certainly provides no guarantee of successful linking.

What the examples evaluated in Section 2 have shown, however, is that political and economic integration can greatly facilitate the practical governance of a linked market. By being able to draw on already existing institutions, such as the EFTA Surveillance Authority for operationalization of the EU ETS in the three EEA states, a link between previously engaged and integrated partners can forego the significant logistical and financial burden of endowing new institutions with a legal mandate, staff and resources.

Where regional cooperation has occurred through a supranational organization with legislative powers or an associated regime, such as the EEA, the ability to adopt a common legal framework with shared definitions, procedures and minimum substantive requirements can also greatly accelerate the process of integrating ETS, as seen with the expansion of the EU ETS to Norway, Iceland and Liechtenstein. And finally, on a purely practical level, geographic proximity – such as between the EU and the EEA states – reduces the burden and commitment of traveling to joint meetings, which could have a larger impact over time than might be expected.

3.3 Conclusions and Overall Assessment

As outlined in this section, a number of pathways are available to create a link between trading systems, ranging from purely unilateral, non-binding links to fully binding bi- or multilateral links. In general terms, unilateral and non-binding linkage offers many of the benefits of a full bilateral link without some of the risks, such as limited sovereignty; it will therefore be of interest to ETS which either do not have the political backing to commit to more far-reaching integration, for instance because of compatibility concerns, or where legal restrictions prevent such a formal commitment, for instance in the case of subnational jurisdictions such as states or municipalities that lack international legal personality to enter binding international agreements. An example for the latter would be the unilateral link created by the CCX to the EU ETS.[18] In terms of timeline, it can also offer a useful way of piloting a link and testing its implications before transitioning to a full bilateral link, as was the case with the envisioned unilateral link that would have allowed Australian entities to use EUAs between 2015 and 2018.

Where legal obstacles and political reservations do not preclude a binding link and full bi- or multilateral linking, such a link will generally signal greater willingness to engage in market integration as well as institutional cooperation. Prior cooperation in forums of regional economic or political integration can facilitate such linking, and may even provide existing institutions that can be leveraged for the governance of the link, as e.g. occurred in the context of the EEA. Still, geographic proximity or far-reaching economic and political integration are not necessarily a precondition for linking, as affirmed by the negotiations on a link between the EU ETS and Australia, nor do they guarantee a swift and successful outcome of linking negotiations, as evidenced in the protracted discussions between the EU and Switzerland.

Rather, the empirical evidence from observing existing case studies suggests that generalizations are difficult, and any predictions of how different forms of linking might be particularly suited to a particular set of circumstances, or how certain existing relationships should favor speedy and successful linking, can therefore be deceptive.

18 See footnote 12.

On the contrary, a myriad number of socioeconomic factors, including such that are directly related to linking (such as ETS design differences) as well as factors that are seemingly entirely unrelated factors (such as a diplomatic setback in other areas of cooperation, or dynamics at the international level that may prompt greater interest in bottom-up cooperation), will determine the prospects of linking, as well as the most suitable type and form of link. And what may be appropriate at one point in time is likely to change going forward, as political preferences, technological innovation and our scientific understanding of climate change evolve, affecting the urgency and viable ambition of climate policies including ETS. Ultimately, linking is neither static, nor does it allow for truly universal inferences: what determines the viability and success of a link will always depend on the contingent circumstances in each individual case.

Table 3: Multicriteria Assessment of Different Linking Mechanisms Based on the Multi-Criteria Analysis Methodologies used by Roßnagel 2008 and Comendant et al. 2014

Type of Link	Extension of ETS	Bi- or Multilateral Link	Bi- or Multilateral Link	Unilateral Link
Legal Nature	Binding EU-EEA States	Binding EU-Switzerland EU-Australia	Non-Binding California-Québec	Non-Binding Australia-EU (2015-2018)
Environmental performance Overall performance of the mechanism in terms of preserving and improving the environmental integrity of constituent ETS	Favorable: harmonization of design features due to full integration under common regulatory framework can avoid contagious features from undermining ETS integrity	Ambivalent: binding agreement may deter ambition, but affords greater certainty and (due to adoption/ ratification procedure) more transparency	Ambivalent: non-binding arrangement could offer reduced incentive to maintain compatibility and safeguard integrity of linked system, but evidence to date does not suggest legal nature has a bearing on environmental performance	Ambivalent: environmental impact of link depends on integrity of linked system; unilateral type of link does not affect environmental impact
Market Performance Overall contribution of the mechanism towards improving the orderly functioning of the constituent ETS	Favorable: full integration under common regulatory framework and uniform market promotes unhindered market operation	Favorable: higher predictability helps foster confidence in the market and the continued link	Ambivalent: depends on establishment of robust joint market infrastructure; reduced stability of non-binding arrangement has not affected market confidence so far	Challenging: procedure to facilitate unit flow is less efficient workaround; gateway/ swapping options further reduce efficiency
Political Acceptability Extent to which the agreement's existence and design is acceptable to the regulators of member jurisdictions	Ambivalent: favorable for linking partner whose ETS is extended; but partner jurisdiction cedes control over design decisions and may be reluctant	Ambivalent; binding agreement may deter decision makers due to greater loss of control, but is popular with some constituencies	Favorable: lack of binding force assures greater retention of control and reduces sovereignty constraints; also less stringent adoption requirements	Favorable: lack of binding force and reciprocity assures maximum retention of control and reduces sovereignty constraints; also less stringent adoption requirements
Implementation Cost Overall costs – including administrative, regulatory and financing – required to implement and operate the link	Challenging: requires linking partner to implement all design features of extended ETS	Challenging: procedure to elaborate and ratify binding agreement is demanding and time-consuming	Favorable: Reduced formality affords greater flexibility and fewer procedural steps	Favorable: Reduced formality affords greater flexibility and fewer procedural steps

Favorable	Ambivalent	Challenging

4 Institutions, Structures and Mechanisms for the Joint Governance of Linked Schemes

As carbon markets become more integrated over time, the discussion on linking of emissions trading schemes will also invariably extend to considerations of governance through institutional arrangements that go beyond the link as such (Stewart et al., 2001: 11). The following chapter will discuss some of the institutions, structures and mechanisms that are available to provide such joint governance of linked ETS.[19]

There are two types of interactions between the linked schemes that the joint governance will need to cater for: first, the routine operation of the schemes and their link (absent of any change in regulations or their implementation) and second, change management, necessitated by changes in the ETS regulation or its implementation.

Table 4: Coordination Needs During Routine Operation of an ETS vs. Change Management

Routine operation, incl. issues such as	Change management, e.g. related to
▸ Market monitoring and oversight; ▸ Dispute settlement, both between market actors and between jurisdictions; ▸ Price management (if applicable); ▸ Transparency and exchange of information; ▸ Stakeholder involvement.	▸ Changes of the ETS regulation in one of the linked systems; including integration of third/other party ▸ Changes to ordinances and bylaws that define the implementation of the ETS regulation; ▸ Changes of other laws that have a (potential) significant impact on the operation of the ETS, e.g. regulations on the use of fossil fuels; ▸ Periodic reviews of the ETS design; ▸ Ad-hoc response to unforeseen events (incl. sudden changes of the carbon price). ▸ Suspension/Termination of the agreement

The latter category, change management is of particular interest since Emissions Trading Systems are dynamic instruments. They change and evolve over time – during their implementation, regulators gain knowledge of their functioning, including learning from mistakes. In light of these lessons learnt, but also in view of changes in the broader political environment (including the international climate regime), any ETS will undergo changes over time. The knowledge that ETS will not stay as they are has implications for linking: in two linked ETS, changes to the design of one ETS will have effects on the other system. Thus, the decision to link is no longer only the result of a process to establish whether two ETS are compatible at a given point in time. Rather, the challenge is to ensure that the ETS are allowed to evolve and mature, and iron out problems identified along the way, and at the same time remain compatible.

In order to discuss which institutions, structures and mechanisms should be available to ensure coordination and co-evolution of linked ETS, the following section discusses the principle options that are available to achieve coordination.

4.1 A Dynamic Perspective on the Governance of Linked ETS

Arrangements for the joint governance of linked ETS may range from loose cooperation between jurisdictions that intend to link to an international organization endowed with formal legislative and enforcement powers. Like the ETS themselves, governance mechanisms for linked ETS are likely to unfold in a dynamic and evolutionary process (Tuerk et al., 2009). The starting assumption is that this evolution will tend to move towards a greater integration of ETS, and increasingly more formalized methods of cooperation. One pathway for this evolution is to start with a loosely coordinated, largely voluntary and networked governance structure, moving through a more binding umbrella agreement that establishes harmonized standards for selected parameters, finally to culminate in the establishment of a joint organization, which would have a mandate to adopt and enforce rules applicable in the different linked markets.

19 There are no single or commonly agreed definitions for terms like institutions and governance. In the broadest sense, an institution can be understood as "a structure or mechanism of social order and cooperation governing individual or collective behaviour in pursuit of social purposes" (Mehling 2009, 8). In this broad understanding, any (permanent) set of rules that governs cooperation qualifies as an institution. The following analysis, however, will limit itself to formal institutions, which are laid down in any kind of document – as opposed to informal ones, which would include culture, habits and customs. One particular type of institutions, but by no means the only one are organizations – i.e. bodies set up with a particular mandate to fulfill particular functions. The term "governance", in the context of this study, is used to refer to the sum of processes and institutions through which the linked parties jointly manage those affairs that the system as a whole, and therefore also each linked scheme.

At an early stage of integration, cooperation may occur through informal networks geared towards an exchange of information, promotion of uniform approaches and standards, stakeholder involvement, and outreach activities. Rather than adopt binding standards or recommendations, these networks would be largely limited to issuing recommendations and providing advice on the implementation and harmonization of trading schemes. As Burtraw et al. (2013) argue, such a process of "linking by degrees" would already allow regulators to realize many of the political and institutional benefits of linking, albeit not its full economic benefits (Burtraw et al. 2013).

As integration becomes more aligned with domestic political priorities, however, participating jurisdictions may be willing to consider more formal arrangements to promote further market integration, such as an umbrella agreement harmonising certain features of the domestic trading schemes and specifying mandatory procedures. Such an umbrella agreement could outline minimum standards (e.g. related to monitoring, reporting and verification), or seek to harmonize technical details (e.g. standards for the registry software used by participating jurisdictions).[20] Procedures could include mutual notification and information duties, external review or reciprocal monitoring of the trading schemes, and periodic meetings of representatives from each trading scheme to discuss items for harmonization, such as cost containment mechanisms. An umbrella agreement may also be used to create an institution with limited powers, such as a treaty secretariat or clearinghouse facilitating trading and continued operation of the market links through coordination of meetings, collection and circulation of information, and general logistical functions such as registry maintenance.[21]

At a later stage of integration, participating States may even opt for the establishment of an international or supranational organization, with independent legal personality, a constitutive mandate, and defined governance structures. Aside from individually defined responsibilities, such an organization could also be afforded genuine powers to adopt and enforce rules for market participants and linked jurisdictions in pursuit of a more broadly conferred mandate. Its objectives could include:

- Facilitating market integration and convergence by ensuring comparability of reduction pathways, sustaining compatibility of central design features, and avoiding fragmentation of national markets over time
- Upholding environmental performance and integrity by implementing robust monitoring and enforcement structures, ensuring adequate administrative and regulatory capacities, and securing additionality of offset credits
- Safeguarding market efficiency and integrity by managing volatility and price extremes in the market, avoiding manipulation by dominant market actors, ensuring market transparency in spot and derivative trading, regulating exchanges and over-the-counter trading, and regulating speculation and risk management with derivatives (Mehling et al., 2009).

Aside from the ability to collect and, where necessary, demand information on different aspects of market operation, such an institution could, for instance, be given control over market access and accountability, oversight of speculation and market abuse, and management of carbon prices. Ultimately, a central institution mandated with broad governance functions may even assume powers akin to those presently exercised by central banks, including the creation of a unit reserve for strategic intervention in the unit supply, as well as powers currently limited to national or regional entities, such as administration of the allocation and auctioning process for units. Concrete proposals voiced over time have ranged from an "International Clearinghouse" to provide a forum for coordination of regulatory issues and create an infrastructure and information basis for management of the combined market (Flachsland et al., 2008: 29-31), a multilateral non-compliance procedure allowing participants to raise claims of non-enforcement in a linked jurisdiction (Stewart et al., 2001: 28), and an "International Carbon Reserve", "Settlement Platform" and "Carbon Rating Agency" to help provide comparability of units across different trading systems (World Bank Task Force to Catalyze Climate Action, 2013). [22]

20 The RGGI model rule can serve as an example of such a solution, which establishes a common set of procedures that members are encouraged to implement without imposing them top-down. More broadly, there may also be scope for such standardized model solutions as an element of the post-2020 international climate architecture. Bodansky et al. (2014) argue for standardized model rules that are available all interested parties to make use of, or to deviate from, at their discretion (Bodanksy et al. 2014).

21 Examples of such organizations include RGGI, Inc. and WCI, Inc., the respective not-for-profit organizations that have been established to provide technical and administrative support to the linked schemes in RGGI and in California-Quebéc.

22 One relevant consideration is the number of linked ETS in the system: whereas a networked governance or a treaty-based system are suitable approaches for bilateral systems of two linked systems, the complexity of the governance increases with the number of linked ETS. For a system of several mutually linked ETS, the effort involved in keeping the governance synchronized increases exponentially, and therefore also the attraction of mandating a single, dedicated organization with the coordination of the participating ETS.

Establishing such institutions would, again, be a matter of adopting a binding international treaty between participating jurisdictions. Aside from defining objectives and responsibilities, such a treaty – often termed an organizational "charter" or "establishing treaty" – will also have to specify its own governance structures and procedures. Typically, this will necessitate creation of a body of appointed officials with specified terms and conditions of appointment, and with rules on geographical and professional diversity.

4.2 Coordination Mechanisms for the Joint Governance of Linked ETS

As the preceding section demonstrated, there are a number of different channels and mechanisms through which the coordination of linked ETS can be achieved. Which of these is most suitable and effective depends above all on the institutional setting, i.e. whether governance is executed in a non-binding, voluntary networked setting, whether it is based on a more comprehensive legal arrangement (including a full-fledged linking agreement), or whether there are even dedicated organizations that can assume functions for the joint governance of the linked schemes.

The following list presents a number of governance mechanisms for the joint governance of linked ETS – in increasing order from less to more binding ones. Coordination can be achieved in the following ways:

1. Through regular **exchange of information** on important developments. Information exchange routines can be defined through a number of parameters:

Frequency	In which intervals is information provided?
Formalisation	How formalised is the process for exchange of information, is the information formally verified and approved prior to its exchange?
Seniority	At which level is the exchange conducted (senior or junior, political or technical-administrative staff)
Detail	In which depth, at which level of detail is information provided?
Scope	Does the information exchange include elements of background, judgement or forward-looking elements?

2. Through **(formal or informal) consultation** between the two parties, where representatives of the foreign ETS have an opportunity to offer their comments or voice their concerns about trends and developments. Again, parameters remain to be defined, such as frequency, level of detail and documentation of the consultations, level of seniority at which consultations take place. A further important consideration is which (if any) consequences the consultation should have, e.g. whether there is an obligation to respond to comments received or concerns voiced by the linked system.
3. Through a commitment to have the performance of each scheme, as well as forthcoming design changes, **reviewed through an independent third party** (either existing or established for this purpose);
4. Through **mutual peer review** of the more formalized processes and procedures (e.g. MRV guidelines or registry operation), as well as reciprocal monitoring of each other's schemes and their performance;
5. Through **co-decision arrangements** for certain decision elements and certain types of design changes (particularly where contagious features are involved). This could range from veto power to joint decision making, to reduced withdrawal / termination conditions in case of non-agreement;

These coordination mechanisms can be supported through (or conferred to) the establishment of a joint organization. Depending on its mandate, such an organization can exercise different roles in the governance of the linked systems:

6. Establishment of a **joint organization that serves as a communication and information hub**, and provides a platform for exchange between the linked systems, possibly also passes recommendations on best practice, and provides training and capacity building. Depending on the depth of cooperation, it is likely that such an organization might branch out into a number of sub-forums and technical working groups for particular sets of issues.[23]
7. Establishment of a **joint organization with a supporting mandate**, e.g. to provide services to the linked systems (registry infrastructure, transaction log, knowledge hub), reconciliation and arbitration, independent review etc.
8. Establishment of a **joint organization with a governance mandate**, e.g. developing rules and specifications that are to be applied in the linked systems, executing certain functions within its mandate (e.g. market stabilization).

Of these, the approaches 1-4 and 6 would typically be found in a networked and voluntary type of governance. Approaches 3-7 are more typical of a governance model based on a comprehensive legal agreement between the linked jurisdictions. Finally, approach 8 represents the model where governance is largely concentrated on a common, dedicated organization. Of course, the less binding coordination mechanisms – such as information exchange or consultations – will continue to play a role in more sophisticated governance models. But in such a setting, they would have a more supportive function, rather than being the main mechanism through which coordination is achieved.

4.3 Differentiation for the type of link being established

The choice of governance mechanisms needed will differ for the type of link that is envisaged. Returning to the differentiation between (reciprocal) unilateral linking, bilateral or multilateral linking, the following applies:

- In the case of a **unilateral linking** (reciprocal or not), less formalization is required. Unilateral links may be based on mutual consent (such as in the unilateral phase of the envisaged EU-Australia link), but in principle they could also be implemented without any consultation or negotiation. Particularly in those cases that work through cancellation & creation of allowances, so that there is no physical flow of allowances between the system, it is easier to terminate the link, as it avoids the problem of "orphaned" allowances from the linked scheme. The (relative) ease of terminating the link also means that it is not as imperative to verify integrity of each other's scheme before the link is made. Thus, non-binding types of coordination (information exchange, consultation and peer review) are more likely to play a prominent role in the governance of unilaterally linked schemes. Joint organizations (beyond a communication forum) are not necessary in this setting. In the case of a reciprocal unilateral link, a clearinghouse that manages the creation and cancellation of allowances might support the operation of the link, rather than having two independent mechanisms to this effect.
- More sophisticated forms of **bilateral linking** will tend to require a more comprehensive legal basis and stronger governance mechanisms. The fact that allowances can flow freely and unlimited between the systems increases the mutual dependence, and makes it harder (and costlier) to suspend or terminate the link. This suggests that networked governance approaches (i.e. exchange or consultation), while helpful to support coordination, may not be regarded as sufficient. And it suggests a need for more binding governance mechanisms (peer review, external review or even co-decision arrangements). It also suggests a stronger role for joint organizations.
- The coordination need is largest in the case of a **multilateral link**. Conditions and options for the governance of such a multilateral link are explored further in chapter 5.

23 These functions are currently exercised by the International Carbon Action Partnership and, to some extent the World Bank Partnership for Market Readiness.

Table 5: Overview of Coordination Mechanisms and their Compatibility with Different Types of Links between ETS

	Information exchange	Consultation	External review	Peer review	Co-decision	Joint forum / platform	Joint service body	Joint gov'nance body
(reciprocal) unilateral link								
Bilateral link								
Multilateral link								

	Governance mechanism is conceivable to work for the type of link, and is likely to achieve sufficient coordination
	Governance mechanism is conceivable to work in a supporting function, but unlikely to provide sufficient coordination in and of itself
	Governance mechanism is conceivable, but not likely to function well and / or unlikely to provide a sufficient level of coordination
	Not conceivable / not relevant

4.4 Differentiation for the Mode of Operation

A further possible distinction for the choice of governance mechanisms is that between the routine, day-to-day operation of the linked schemes, and governance rules that apply to accommodate changes in either of the linked ETS. Particular challenges in the latter case are singular, unforeseen events that require a coordinated response in all linked schemes. The obvious caveat applies that there may not be a perfect, uncontested solution for drawing the line between routine operation and exceptional circumstances.

4.4.1 Mechanisms for Routine Operation

Routine operation of the ETS describes a state where all linked schemes operate as envisaged and "according to schedule", i.e. in line with the respective pieces of regulation. For linked ETS, provided that all contentious points have been addressed and resolved in a linking agreement, this would suggest that there are no developments that would necessitate joint decisions to be taken.

Also during routine operation, there are a number of processes and (predominantly administrative) functions that affect all linked schemes. This includes, for instance, the auctioning of allowances (and associated monitoring), monitoring and oversight of the secondary market, the operation of the registry, but also dispute resolution for private actors across the linked schemes. These functions can either operate through a common platform (or other administrative infrastructure) that is jointly maintained by the linked schemes (in order to reap economies of scale, as exercised by RGGI, Inc. and WCI, Inc.). If each linked scheme continues to operate these processes and functions independently, these activities need to be coordinated between linked schemes (in particularly auctions), and there needs to be regular exchange of information.

In terms of applicable governance mechanisms, the most important mechanisms during routine operation will be the exchange of information (particularly if the linked schemes continue to operate their own technical and administrative infrastructure), as well as coordination through a joint organization with a supporting mandate (if the linked schemes operate a common platform for these functions). Examples of such arrangements for information sharing and technical working groups for ongoing exchange of experience can be found in all existing cases of linked ETS. The following box provides an overview of such arrangements in the cases of the California-Québec link, RGGI and the EU ETS – EEA link. Further detail on the respective provisions can be found in the annex (chapter 9).

Thus, in the case of **California and Québec**, several staff workgroups were established already during preparation of the linking arrangement to discuss specific aspects of implementation (ARB 2013: 12) such as development and operation of the joint registry, development of the joint auction platform and the conduct of joint auctions, and a Management Workgroup to set the overall priorities and track the progress of the staff-level work groups.[24] These staff workgroups function as a standing forum to assess the linking arrangement and its operation, and to discuss improvements where needed. Outcomes from the workgroups are then implemented by WCI, Inc. and its retained contractors or, if the scale and nature of the issue warrants it, presented to the Board of Directors of WCI, Inc. for a decision.

In addition to the staff workgroups, the linking parties have established a Consultation Committee composed of one representative from each party (Article 12 of the California-Québec Agreement). Meetings are held "as needed to ensure timely and effective consultation in support of the objectives of this Agreement". More specifically, the Consultation Committee is mandated with monitoring the implementation of all harmonization and integration efforts for the trading systems and greenhouse gas emissions reporting rules, making related recommendations, providing an annual report on the results of the linking arrangement, and address any other issues raised by the parties (Article 12).

In terms of information sharing arrangements, the linking arrangement between California and Québec includes a tenet to promote "the sharing of information to support effective analysis, operation, enforcement and supervision of the market for compliance instruments" (Article 1f). Article 14 affirms the importance of information, calling on parties to "jointly arrange to share information collected and developed under their respective programs."

More specific information duties are inter alia stipulated for developments potentially affecting market integrity,[25] supervision and enforcement,[26] and public announcements.[27]

In addition, WCI, Inc. has been tasked with reporting to partners on market activity, serving as a forum for partner jurisdictions to update one another on program progress, and coordinating review on protocols of offsets, updated reporting protocols and offsets certificates. Furthermore, several private entities have been contracted to provide a number of services under WCI, including a Market Monitor for monitoring market operation.

In the case of **RGGI**, RGGI Inc. is the primary body that facilitates exchange among the participating jurisdictions. Under the MoU, the first task which with RGGI, Inc. is mandated is to act as the "forum for collective deliberation and action among the Signatory States in implementing the Program". In addition to RGGI Inc., the MoU provided for the creation of a further institutional arrangement, a multi-state working group charged with assessing "potential options for addressing leakage" in consultation with "a panel of experts, stakeholders and representatives of the regional transmission organizations" (Sec. 6.A.1.a RGGI MoU). Finally, an independent market monitor ("Potomac Economics") has been contracted to monitor the operation of the RGGI allowance market, for instance with a view to market manipulation, assessing auction implementation, and recommending changes to the market rules (EDF 2013c: 6).

In the case of the **EU-ETS and the EFTA States**, the situation is somewhat different in the sense Norway, Iceland and Liechtenstein are included in the EU ETS, rather than being linked to it through a linking agreement. Thus, in terms of coordinating mechanisms for the routine operation of the scheme, there are hardly any provisions for information exchange related to the link itself; rather, the three countries participate in the regular mechanisms for information exchange and reporting that are foreseen under the EU ETS.

24 Essentially, the MWG addresses any issues that cannot be resolved in the other work groups. It informs WCI, Inc. of the jurisdictions' priorities for developing and maintaining the administrative capabilities needed by each jurisdiction's program, which are used by WCI, Inc. to develop its plans for consideration by its Board of Directors, see ARB 2013: 12.

25 According to Art. 7 of the California-Québec Agreement, parties "shall keep each other informed of any investigation, pertaining to but not limited to acts or omissions on the part of any of its registered entities or other persons authorized to act under the programs and any violation, penalty or fine, or decision rendered with respect to those acts or omissions."

26 Under Art. 10 of the California-Québec Agreement, parties "shall facilitate, in accordance with the privacy legislation applicable in each of their territories and the provisions of Article 14 hereunder, the sharing of information to support each Party's effective analysis, supervision and enforcement of the applicable laws and regulations."

27 As Art. 15 of the California-Québec Agreement states, parties "shall keep each other informed in advance of any public announcement related to the mandatory reporting of greenhouse gas emissions and the cap-and-trade programs for reducing greenhouse gas emissions. Any announcement concerning the harmonization or integration of the Parties' programs shall be prepared and, if possible, made public jointly."

This includes, for instance, the annual reporting of each Member State to the EU Commission foreseen under Article 21 of the EU-ETS Directive, wherein the Member States are committed to report on the application of the Directive, and in particular on issues such as "allocation of allowances, the operation of registries, the application of the implementing measures on monitoring and reporting, verification and accreditation and issues relating to compliance with this Directive and on the fiscal treatment of allowances". These reports are provided by Norway, Iceland and Liechtenstein using the same template, and are collected and evaluated by the EEA jointly with the Article-21 reports of the 28 EU Member States. Other reporting obligations, such as those contained in Article 30 of the EU ETS Directive (information related to the Review and further development of the EU ETS Directive), also apply to the three countries, except for certain parts of information related to compliance with international obligations under the UNFCCC.[28]

At the same time, there is only one incidence where the Decision of the EEA Joint Committee No 146/2007 of 2 6 October 2007 establishes an particular reporting obligation from the EU to the three EFTA states: Article 1 Para 2 (l) of this decision mandates that the EU Commission "shall keep the EFTA States informed regarding the negotiation and conclusion of [linking] agreements according to … Article [25], at an early stage."

4.4.2 Change Management related to Adjustments During the Operation of an ETS

As ETS change and evolve over time, one challenge for the governance of the link is to work towards greater convergence between the linked schemes, or at least to prevent divergence in a way that could affect the functioning of the linked system. It is obvious that, in a system of two or more linked ETS, there would have to be some kind of exchange, review or consultation if one scheme changes the underlying ETS legislation in a fundamental way. Yet, during the routine operation of any ETS, there are plenty of minor changes and adjustments that do not involve a change of the underlying legislation. This includes e.g.:

- Adjustments of the implementing ordinances, by-laws, decisions and guidelines (including items such as monitoring guidelines, definition of sectors deemed to be at risk of carbon leakage, allocation benchmarks etc.);
- Patches and fixes to the technical / IT infrastructure (e.g. registry software and architecture);
- Changes in the ETS practice necessitated by court decisions, without changes of the underlying ETS legislation, but with effect on its interpretation and application.

The majority of these changes and adjustment will affect ETS design elements and implementation procedures that are uncritical for the functioning of the system of linked ETS, such as registries, allocation rules or MRV (provided that the changes do not affect the overall robustness of the MRV system) (see e.g. Mace et al. 2008; Tuerk et al. 2009). Therefore, procedures such as **information exchange, consultations** (formal or informal), **external review or peer-review** would offer a sufficient degree of coordination. Also, these types of changes would typically be best discussed between administrators at the technical and implementation level, and would usually not involve higher political levels.

Where linked ETS have established a **joint forum for exchange**, the types of issues that fall under this category would likely be the staple food of such an organization. Likewise, where linked ETS rely on the support of a dedicated **service organization** (such as RGGI, Inc. or WCI, Inc.), it is likely that many of the types of changes that would fall into this category will affect activities that fall under this organization's mandate. An example would be the operation of a joint registry, or the issuances of guidance and recommendations on MRV, which are in the remit of RGGI, Inc. and WCI, Inc. respectively.

4.4.3 Change Management related to Periodic Reviews

A common feature of most ETS currently in operation are periodic reviews of the underlying legislation. Such reviews are scheduled to provide an opportunity for adjusting and refining an ETS, and to respond to identified shortcomings, to political developments or to new scientific insights. Such reviews are typically timed to precede new trading periods, so that changes adopted will take effect at the start of the next trading period.

28 Specifically, Article 2 (m) of the Decision of the EEA Joint Committee No 146/2007 of 26 October 2007 specifies that the three countries are exempted from reporting obligations in the second subparagraph of Article 30(3) of the EU ETS Directive, concerning reporting on "the extent to which domestic action actually constitutes a significant element of the efforts undertaken at national level, as well as the extent to which use of the project mechanisms is actually supplemental to domestic action."

In this sense, periodic reviews represent a middle case – they are neither routine operation, nor extraordinary or unforeseen.

In terms of governance for a system of linked ETS, periodic reviews are clearly of particular interest. They involve – sometimes fundamental – changes of the underlying ETS legislation. Such changes may also involve design elements that are critical for linking, such as the level of the cap, or price containment provisions (see e.g. Mace et al. 2008; Tuerk et al. 2009). As changes made in one ETS as part of the review may also necessitate changes in other, linked ETS, there is a case for aligning the review periods where administratively possible.

In terms of available coordination mechanisms,

- **Information exchange**, while important as a basis for any coordination and cooperation, will not be sufficient to achieve the necessary coordination. The importance of information exchange is in fact higher in the run-up to the actual review process, e.g. informing partners early on identified shortcomings and reform needs that are likely to play a role in the review.
- **Consultation** is of high relevance during the review process. For linked ETS, the period of domestic stakeholder consultations that is typically part of any scheduled review will need to be complemented by intensive consultations with the linked scheme.
- **External review** or **peer review** of reform proposals are both feasible options too, and can provide useful support to the review process. In particular external review is common practice in existing ETS.
- Where rules for **co-decision** are in place, they can possibly play a role for key elements of the review with a capacity to affect both linked systems, such as the overall level of the cap.
- A **joint service body** can be very useful in terms of providing technical support to the program review (collecting information on the performance of the scheme, preparing evaluation reports etc.).
- Where a **joint governance body** exists, depending on its mandate, it could in principle play a role in coordinating the reviews of the participating schemes. However, in light of the fact that the periodic review of the ETS provides a rare opportunity to change fundamental aspects of the system (such as cap-setting or the general principles of allocation), it is questionable whether the participating jurisdictions would be prepared and well-advised to relinquish control over such inherently political choices to a joint governance body.

4.4.4 Provisions for Extraordinary and / or Unforeseen Developments

The most demanding challenges for the governance of linked ETS are unforeseen and/or drastic changes to the ETS – or the conditions under which it operates; often in response to external shocks (positive or negative). These could include, for instance:

Changes related to the ETS itself, such as:

- Further ETS included in a system of linked ETS;
- Linked sub-national ETS is merged into a federal / nationwide scheme;

Changes related to framework conditions, such as:

- Severe and protracted economic crisis, leading to the build-up of an allowance surplus and possibly necessitating an adjustment of the cap;
- (positive or negative) developments in the international climate regime, e.g. breakthrough or collapse at the UNFCCC negotiation process, possibly leading to a re-evaluation of climate mitigation targets (on which the cap is based);

Erosion of trust and goodwill between the linked parties, e.g. due to:

- Drastic shift in political majorities (and political attitude towards climate policy), eroding trust in the future existence, or the future ambition, of the linked ETS;
- Substantial political differences resulting from changes to ETS design parameters that are formally irrelevant to linking, but nonetheless politically sensitive (e.g. extension of scope to include aviation, introduction of border adjustment measures against third parties);

- Criminal activity and fraudulent behaviour on a scale that affects trust in the integrity of the scheme (e.g. registry hacks, corruption or otherwise weak enforcement for non-compliant entities, offsets fraud);
- Changes in the general political relations between parties outside the scope of emissions trading that negatively influence cooperation between parties.

Changes of the first type (changes related to the ETS itself) would typically be addressed explicitly in a linking agreement (see also chapter 5). The same may be true for changes of the second type (changes related to framework conditions), with the added complication that the multitude of possible changes in framework conditions is more difficult to specify ex-ante. Finally, developments of the last type (erosion of trust and goodwill) are most difficult to anticipate: the very function of the linking agreement is to establish the foundations for a mutually trustful cooperation. The cases above are examples where that trustful cooperation is no longer given, even though the linked system may still formally comply with all requirements. As a result, if the erosion of trust and goodwill is deemed to be permanent and irreversible, the likely result would be a suspension or termination of the link.[29]

In terms of coordination mechanisms that could be used to respond to such changes in a linked ETS, **consultations** are clearly a suitable option. Given that the situations may involve an erosion of trust – and thus a need to re-establish confidence in each other's commitment – this will most likely need to take the form of formal, high-level consultations at the level of senior political officials (state secretaries or above). An **external review** could possibly be helpful to bring in an objective, impartial perspective or even to function as arbiter – provided that the parties can agree on such an external reviewer that is deemed competent and impartial. **Peer review**, while possible, is likely to be difficult in a situation of strongly opposed views and (possibly) eroding trust between partners.

In terms of institutionalized coordination mechanisms, the use of a **joint forum or platform**, where it exists, is clearly a very sensible option to provide for structured exchange in a neutral, cooperative setting. A **joint service body** can of course also fulfill the same function of providing a forum for partners and proposing a possible solution (if mandated to do so). Such a function would be more difficult to assume if the service body was set up mostly as an apolitical body exclusively for technical support.

The following table provides a stylized overview of the seven coordination mechanisms identified earlier and their suitability for the types of coordination needs that would arise in the different situations.

Table 6: Overview of Coordination Mechanisms and Coordination Needs for Routine Operation and Change Management in Linked ETS

	Information exchange	Consultation	External review	Peer review	Co-decision	Joint forum / platform	Joint service body	Joint gov'nance body
Routine Operation								
Minor Changes during Routine Operation								
Major Changes through Periodic Reviews								
Major Changes due to Extraordinary Events								
	Governance mechanism is conceivable to work for the task to be solved, and is likely to achieve sufficient coordination							
	Governance mechanism is conceivable to work in a supporting function, but unlikely to provide sufficient coordination in and of itself							
	Governance mechanism is conceivable, but not likely to function well and / or unlikely to provide a sufficient level of coordination							
	Not conceivable / not relevant							

29 A further consideration is that the erosion of trust and goodwill is not only a contingency that the linking agreement should cater for. In contrast, the linking agreement, through its legal nature and design, also has a role to play in fostering trust and goodwill among the partners, and preventing their erosion in the first place. This is particularly relevant in cases where a linking agreement involves a jurisdiction where climate politics is a highly partisan issue, and a drastic change in policy is a realistic option. In such circumstances, the linking agreement is more likely to include, for instance, institutional constraints that make an exit cumbersome and costly.

4.5 Conclusions and Overall Assessment

As ETS change and evolve over time, it is essential for linked ETS to arrive at a joint system of governance that allows for changes in the participating schemes, while ensuring the compatibility of the system, its smooth operation, and of course its environmental integrity. In principle, a number of different coordination mechanisms are available, that can form constituent parts of the joint system of governance. These range from softer, networked types of governance (emphasizing information sharing, exchange of experience and best practice, consultations and peer review), to harder, formally binding types of governance, which will involve a transfer of sovereignty over at least some elements of ETS design, either to the linked partner by providing for co-decision, or to a dedicated organization with some authority.

Related to the design of governance in a system of linked ETS, the following observations can be made:

- Not all governance options are mutually exclusive – regular information sharing, for instance, should be part of any arrangement as a basis for trust and informed debate among partners. The question is thus rather whether information sharing by itself can be expected to offer sufficient coordination, or whether it can merely support other, more formal coordination mechanisms.
- As the nature of a link may change and evolve over time, so too can the development of joint governance institutions be seen as a process, as a sequence of moving through different options. Thus, information exchange, and loose coordination through regular exchange may be sufficient in an early stage of linking (e.g. unilateral link preceding a full bi- or multilateral link), more elaborate and more binding models of joint governance may be called for as the link evolves. In particular, options that involve a transfer of sovereignty to the linking partner or to a dedicated organization may be more palatable if they are preceded by a trial period.
- The choice of the most suitable governance options will be partly determined by the legal nature of the linking agreement – some types of governance are more amenable to certain types of legal frameworks. More sophisticated and formalised coordination mechanisms (in particular involving shared institutional arrangements with functions beyond information sharing, as well as any coordination mechanism that involves some transfer of sovereignty) will require a solid and sufficiently comprehensive legal basis, establishing a clear mandate for joint institutions. More informal, networked-governance types of approaches are more suitable, and may indeed be sufficient for the coordination of loose unilateral links.
- The choice of the most suitable governance options will also depend on the situation that needs to be negotiated, in particular related to routine operation vs. change management of different intensities. Routine operation of the linked ETS is essentially the situation that is laid out in the linking agreement, and should thus not be critical – provided that there is a functioning mechanism for ongoing exchange of information and experiences, as well as feedback between the systems. A similar point can be made about smaller administrative adjustments that do not affect the operation of the linked ETS in any substantial way: while it is important to keep each other informed, and beneficial to incorporate each others' views and experiences, the coordination need is limited. More challenging situations are joint governance solutions for (scheduled) periodic reviews, and particularly for unforeseen changes.

  For these, soft coordination mechanisms such as information exchange are insufficient, and harder coordination mechanisms may be called for. In particular in the case of unforeseen changes (e.g. economic or political crises, change in government, or general erosion of trust), it is however questionable whether partners will adhere to the coordination mechanisms, and thus a risk that coordination may fail at the time when it is most needed.
- In the case where a link is established between jurisdictions where there is already a high degree of pre-existing political and economic integration, governance structures are more easily established. Not only since there may be pre-existing shared governance structures that can be used or adapted for the purposes of the link, but also because a history of cooperation will foster political goodwill, trust in the administrative capacity of the partner jurisdiction, and possibly other examples of conceding sovereignty under a joint regime. Still, even in these cases, political hurdles may prove higher than expected, as witnessed in the EU-Switzerland negotiations – but still, linking is a matter of years rather than decades. In a situation with less political and economic integration, and less familiarity with each others' systems, it may be more appropriate to rely on softer, non-binding types of cooperation and coordination for a number of years before entering into a harder, more binding type of governance.

Clearly though, the choice of a suitable coordination mechanism remains a political one – if there should be a strong political commitment, or even a strong global regime, this could clearly expedite the process of arriving at a linking agreement.

- Finally, in terms of the balance of powers between the linked ETS, size matters: the EU ETS in particularly has so far only contemplated links to much smaller partners; this difference in size and power is therefore also reflected in the chosen or favoured coordination arrangements. In the extreme case of the expansion to Norway, Iceland and Liechtenstein, the latter three essentially surrendered their sovereignty over matter of ETS design, and committed to implement all changes in EU legislation, with very limited options for recourse, and essentially no obligations on the side of the EU (Jónsdóttir 2008: 30). But also in the cases of the EU-Switzerland and the (now abandoned) EU-Australia negotiations, an implicit but clear premise was that the much smaller Australian and Swiss ETS would need to adjust to the larger EU ETS rather than the other vice versa (Hawkins and Jegou 2014: 38). With this in mind, and provided that these conditions will also apply in future linking negotiations, it is of course more attractive for the EU to push for stricter, more binding coordination mechanisms, if it is predominantly or exclusively the linking partners that need to surrender sovereignty over ETS design elements, and commit to follow the EU model. However, while this situation would apply to potential linking candidates in the European periphery (such as Ukraine, Kazakhstan, Turkey, Morocco or others), it is less likely for larger jurisdictions, and partners further outside the European sphere of influence.

5 Extending Linking Arrangements and Ensuring Compatibility with Multilateral Regimes

5.1 Multilateral Linking: Governance Implications

As highlighted earlier in this report, many of the benefits of a link between ETS are directly related to the scope and size of the resulting market (Green et al., 2014: 1065). Linking will result in greater heterogeneity of abatement cost across market participants, thereby allowing greater aggregate efficiency gains through trading, which in turn may facilitate political agreement on more ambitious reduction targets (Lazarowicz, 2009); by increasing the number of market participants, a link also results in improved liquidity in the market. Likewise, the larger the sectoral and geographic scope of the linked market, the greater its ability to mitigate leakage and competitiveness concerns as prices and marginal abatement costs converge. All things being equal, thus, a greater number of linked ETS should also yield greater benefits.[30]

Unsurprisingly, extending the rationale of linking beyond the natural starting point of a link between two ETS has exerted significant appeal to decision makers in the public and the private sector.

As the number of jurisdictions with some form of carbon trading in place continues to expand, the anticipated benefits of linking have recently prompted several high-level appeals to work towards a global carbon market by way of multilateral integration of local, regional and national ETS (BG Group et al., 2015; Carbon Pricing Leadership Coalition, 2014; Haug et al., 2015; ICAP, 2014: 4; House of Commons, 2015: 11-12; Merkel and Hollande, 2015). Limited progress with actual linking notwithstanding, it can therefore be assumed that multilateral linkage will remain on the political agenda going forward.

As linking extends beyond bilateral relationships, however, it will be accompanied by new governance challenges, some of which are additional and distinct to those already faced in a bilateral link. While bilateral linking requires coordination between two parties, a multilateral link will necessitate a process that facilitates agreement among several parties, with a potentially changing composition of linked jurisdictions over time. Critical design features – such as price caps or price floors – can affect all linked systems, requiring that minimum conditions for linking be met by the entire group of participating jurisdictions. Restrictions and conditions imposed by each individual party may thereby narrow the range of viable linking options to a lowest common denominator.

30 In theory, a globally uniform carbon price set at a level that internalizes the social cost of greenhouse gas emissions would maximize the aforesaid benefits, and therefore offer the most cost-effective policy option for climate change mitigation. Because it is not likely to garner political support in the near or medium term, however, expanding links between ETS offer a more flexible and therefore more viable pathway to leveraging these advantages.

Procedures that require the active involvement of each party will become more complex to manage and may require longer timelines than are possible in a purely bilateral relationship. As a rule, thus, the greater the number of participants in a linked carbon market, the greater the governance complexity.

Simply extending the coordination mechanisms that work in a bilateral linking context may therefore prove inadequate for the governance needs in a multilateral context. Much will depend on how the multilateral link evolves, and whether it originates around a common governance framework or organically through incremental expansion of bilateral linkages without central coordination.

Additionally, bi- and multilateral linkages evolving at the domestic or regional level are likely to overlap with existing multilateral governance structures, notably the international climate regime evolving under the UNFCCC. Ideally, multilateral cooperation under the UNFCCC will serve a facilitating role, for instance by providing common definitions, methodologies or institutions that can promote linkages and address some of the attendant governance challenges. Importantly, any shifts in greenhouse gas abatement efforts following from a bi- or multilateral link should be reflected under the UNFCCC regime, ensuring that net flows in the carbon market are accounted for when measuring achievement of international pledges or commitments, such as the Independent Nationally Determined Contributions (INDCs) submitted by parties in the negotiations on a post-2020 climate regime (Bodansky et al., 2015).

Related governance questions will be addressed in greater detail in the next subsections, starting with an overview of the specific governance challenges arising from an extension of linking arrangements beyond bilateral arrangements, categorizing different forms of such an extension, summarizing the state of discussions around their implementation, and briefly addressing their respective benefits and disadvantages. Further subsections address the question of compatibility with existing and emerging elements of the international climate regime, as well as, finally, possible compatibility issues with other multilateral regimes such as the international trade regime. A concluding subsection reviews the main takeaways from this analysis, inferring recommendations for policy makers looking to facilitate linkages between ETS in a manner that is consistent with other international regimes and supportive of eventual extension towards a growing and, ultimately, global carbon market.

5.2 Alternative Frameworks for Multilateral Linking

Generally speaking, a multilateral link is any link between three or more trading or crediting systems. Multilateral links with a limited number of parties may also be termed plurilateral, to distinguish them from those with large regional or global participation (Aust, 2007: 139). There is no upper limit to the number of parties: a multilateral link can, in theory, reach universal participation, and thus become a de facto global carbon market (Jaffe et al., 2009: 806), although political dynamics currently suggest that multilateral links will at best evolve gradually and remain limited in scope for considerable time.

Although unidirectional links between three or more parties may satisfy the formal definition of a multilateral link set out above, with changes in any one system affecting all other linked systems, the focus in this section will rest on linking in which trading flows are possible between all linked systems.

Direct trading between all linked systems (multidirectional trading) is not a necessary condition, as a single chain of direct links between systems will allow units to flow across all systems, including those that are not directly linked (see Figure 1 below). Still, a full multidirectional link allowing direct trading between all participating systems will certainly reduce transaction costs and improve market efficiency.

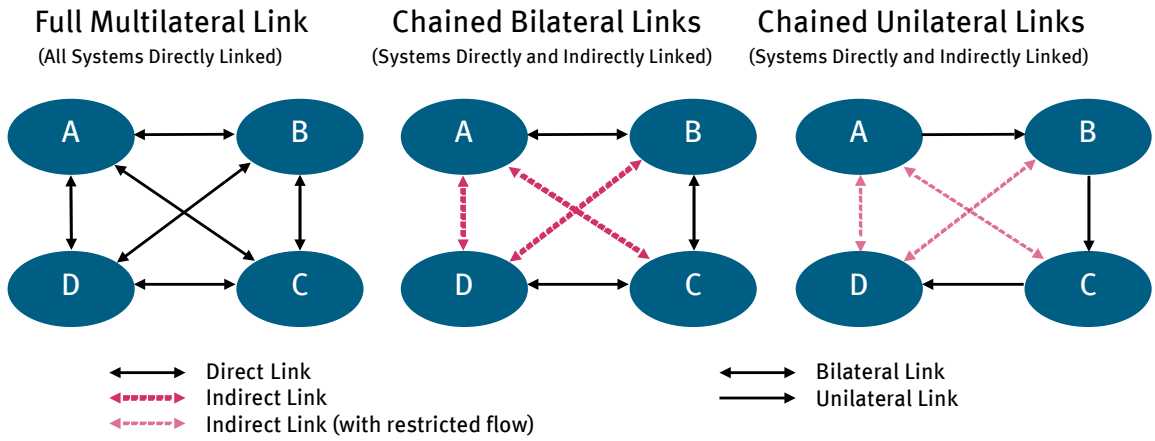

Figure 1: Full Multilateral, Chained Bilateral and Chained Unilateral Linking

Two separate pathways to a multilateral link are thus conceivable: absent some form of central coordination and planning, a link can become multilateral when partners in a bilateral link jointly or individually enter a new link to a third system, with further expansion of the market occurring over time whenever one or more of these systems links to additional systems. Each new link would typically become a matter of independent negotiation, without a harmonized procedure ensuring consistency with previous links. Unless parties jointly engage in an effort towards greater centralization, the governance of such a multilateral link is likely to be heterogeneous, with governance functions exercised through various layers of bilateral arrangements that ensure only minimum ad-hoc coordination across the entire linked market.

Alternatively, where three or more parties decide to proceed with a greater degree of coordination, they may link through a common governance framework and potentially even align the design of their domestic ETS with a harmonized design ("model rule" or design template). Over time, additional parties can join this multilateral link to form clusters, or "clubs", of carbon markets, each in turn ensuring that its system is aligned with the common design and governance framework. Conditionality of accession based on minimum design and governance standards will serve to safeguard the compatibility of systems in the linked market, and ideally obviates the need for lengthy negotiations experienced in a less coordinated linking scenario. But compatibility of systems need not be the principal criterion for multilateral linking: where system heterogeneity is such that it precludes a traditional link, parties interested in carbon market integration can also explore restrictions or quotas to mitigate the potential impacts of problematic design differences, or altogether depart from reliance on compatibility and instead focus on comparability, using tiered adjustment mechanisms to establish the fungibility of units.

It should be noted, however, that there is no static dividing line between any of these pathways towards multilateral linking: a multilateral link that has evolved in an ad-hoc, organic fashion may eventually see political support for greater coordination and harmonization emerge in participating jurisdictions, ultimately resulting in the adoption of central rules and institutions. Conversely, a multilateral link that has grown out of a concerted effort with centralized governance structures may experience renegotiation of linking terms with individual parties or accession of new parties that are unwilling to adhere to all elements of the harmonized framework, yet whose participation in the linked market is considered politically or economically so advantageous that individual divergences are considered tolerable; or finally, a multilateral link may initially be based on comparability adjustments and heavily discount units from less robust participants, yet in doing so incentivize systems to converge in levels of ambition and thus ramp up towards full equivalence over time. In all cases, both the participating systems and their cooperation through a multilateral link are dynamic processes rather than static endpoints.

In sum, like emissions trading itself, the practical implementation of multilateral linking will rarely evolve along the lines of pure conceptual ideas, more typically manifesting itself as a shifting equilibrium on a sliding scale between different theoretical extremes. For the purposes of this report, however, the analysis of governance implications of different pathways to multilateral linking will focus on conceptually straightforward starting points, recognizing that insights from these theoretical ideals will nonetheless be relevant for hybrid approaches combining elements of different approaches.

5.2.1 Ad-hoc Multilateral Linking

In its simplest form, the extension from a bilateral to a multilateral link occurs when one or both parties to the existing link choose to enter into a link with a third system. If only one party decides to link with the third system, it will create a chain of bilateral links, resulting in both direct and indirect linkage between systems; if, by contrast, both parties to the bilateral link agree to link to the third system, the resulting link will be fully multilateral, with direct links between all parties (see below, Figure 2). Under either option, the new link will result in some degree of fungibility of carbon units, and thereby allow the introduction of allowances or credits from the third system (or sales thereto). Consequently, it will also have implications for the original link by affecting the availability and quality of carbon units throughout all linked systems.

Such ad-hoc emergence of a multilateral link without prior harmonization or centralized coordination can yield some of the benefits of an expanded market, but will likely be accompanied by substantial transaction costs that may impede unrestricted trading across all systems. At the same time, it introduces new risks and additional complexity into the governance of the linked systems. Each of the two pathways towards ad-hoc multilateral linking – chained bilateral and full multilateral linking – are discussed in greater detail in the following subsections. Additionally, a separate subsection will address the implications of extending the multilateral link beyond the initial constellation of three parties.

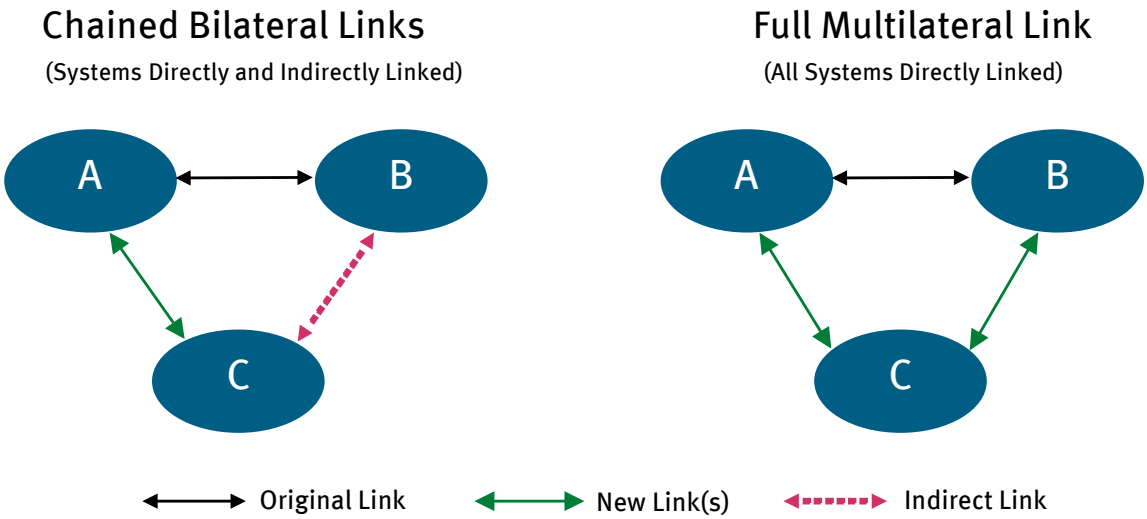

Figure 2: Chained Bilateral and Full Multilateral Linking

5.2.2 Multilateral Linking through Chained Bilateral Links

The unilateral decision by any one partner in an existing link to enter a new link with a third system – creating a chain of bilateral links – can have multiple ramifications for the original linking partner, both regarding the routine operation of the market and the management of changes to system compatibility (for details, see supra, Section 4). If the original link is conditional on the adoption or maintenance of specific design features (e.g. specified MRV standards or offset protocols), for instance, the party entering a new link may intentionally or unintentionally undermine this feature of the original linking arrangement without altering its own design.

An example can illustrate this risk of chained bilateral links: if the original linking partners – A and B in Figure 2 above – have agreed that neither system will introduce a price cap or safety valve, one party could still benefit from capped allowance prices by linking to a third system with such a feature in place.

Because a price cap is a contagious feature (see, e.g., Tuerk et al., 2009; Hawkins et al., 2014; ICAP, 2015), it would de facto extend to all three systems: if A links to a third system, C, that has introduced a price cap, market participants in the original linking partner, B, will have access to capped prices via A. Even if units are not fully fungible across all systems, the flow of units at capped prices from C to B can still occur through displacement of units from A, as its market participants meet demand by purchasing units from C or engage in arbitrage activities to profit from the price differential.

In such a scenario of limited fungibility, unit flows through the indirect link would be limited by the relative size of systems (with the size of A being the limiting factor), and transaction costs may potentially be higher. Qualitative or quantitative restrictions in place between any of the systems will further limit the flow of units. Still, the unilateral decision to enter a link between A and C will result in an indirect link between B and C, and invariably have impacts on the original linked market.

In order to prevent subsequent links from undermining the integrity and operation of the original link, linking partners should from the outset seek to include provisions in their linking arrangements stipulating the conditions under which either party may unilaterally enter links with third systems, or at least setting out a consultation procedure and timeline so the original linking partner is left with sufficient time to consider the impacts of the new link, discuss conditions or changes that may need to be applied to maintain the viability of the original link, or – as a last resort – terminate the original link, potentially with an accelerated timeline. Such provisions are of particular relevance where the links are formal and based on a legally binding agreement; but even where the links are based on mutually reciprocal unilateral linking and each partner can, in theory, withdraw from the link at any time, some type of understanding on the process for additional linkages will be critical to ensure the transparency and predictability needed to avoid disruptions.

Full Multilateral Linking

Alternatively, the second partner in the original linking arrangement (B in the example above) may decide to join the new link, creating a full multilateral link in which all three systems (A, B and C in the example above) are directly linked. If this occurs on an ad-hoc basis, that is: evolving individually (between A and C and between B and C) rather than through a coordinated decision of all parties, the links between each system will typically still be independent bilateral links, meaning that their existence is not mutually conditional, nor will conditions or governance elements set out therein necessarily be harmonized with the other links. For the same reasons that coordination is beneficial in bilateral relationships, some degree of coordination across parties will also be helpful in the newly formed multilateral relationship.

Given the convergence of political will facilitating links between all parties, such coordination should generally prove easier than in the foregoing scenario of chained bilateral links, where one of the original linking partners opts against a direct link to the new party (for instance because it does not consider the new party's ETS sufficiently robust). Where some form of coordination is politically viable, the various governance functions outlined in Section 4 – ranging from information exchange, consultations, and external or peer review over co-decisions to a joint institutional platform – can all be beneficial in sustaining the compatibility of systems, avoiding disruptions to the market, reducing transaction costs, and generally fostering transparency and mutual trust. As in the case of links between only two parties, the greater the desired level of market integration, the more robust their common governance structures will need to be.

Extending the Ad-hoc Multilateral Link

What has been outlined above for the governance of a multilateral link based on the ad-hoc extension of a bilateral link applies to any further links expanding the multilateral link, be it by lengthening a chain of bilateral links or by increasing the number of parties to a full multilateral link. On the margin, however, the addition of each new system will increase the number of links between systems, adding to the complexities faced when seeking to govern the growing linked market. In practice, a multilateral link that emerges in an ad-hoc process will likely unfold organically, with parties linking jointly or individually to third systems over time. As the linked market expands, it will therefore combine features of both a chain of bilateral links and a full multilateral link. What all expansion pathways have in common, though, is a non-linear increase in direct and – as the case may be – indirect links between systems (see below, Figure 3). Regardless of how systems link, the sum of direct and indirect links will always increase disproportionately along an infinite series of triangular numbers (1, 3, 6, 10, 15, 21, and so on).

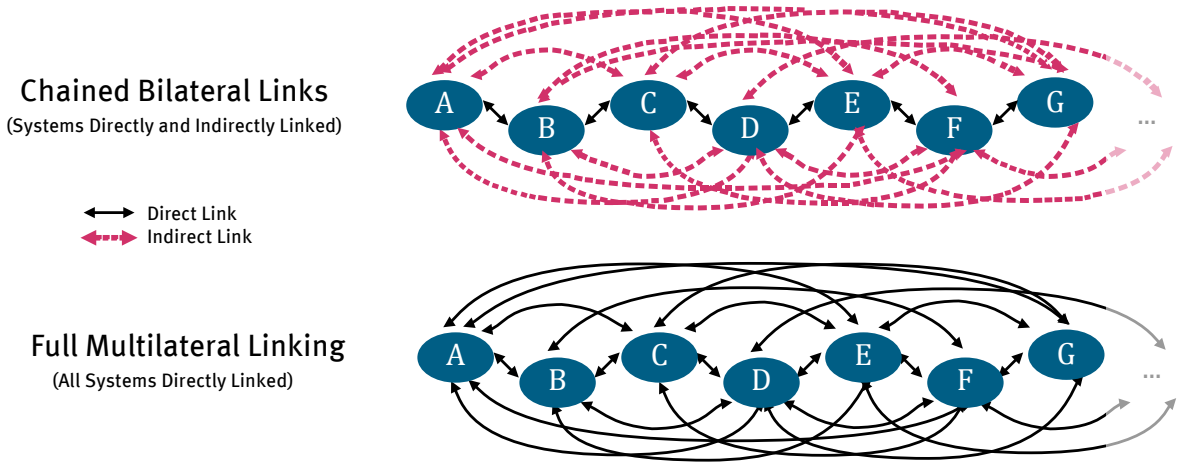

Figure 3: Rising Complexity with Ad-hoc Multilateral Linking

Because of the complexity accompanying a rapidly growing number of direct and indirect links, parties will have an interest in specifying minimum conditions and procedures for any future links entered by their respective linking partners. Where no such arrangement is agreed from the outset, parties may opt to reach an understanding retroactively as additional links are negotiated. In all cases, absent some form of centralized coordination, the growth in individual ad-hoc arrangements will quickly result in an unwieldy patchwork of parallel procedures and material stipulations. This dynamic should eventually create pressure towards greater coordination and some degree of harmonization under a shared governance framework. At the same time, as the market expands – and especially if it affords growing evidence of the benefits of linking – it is likely to exert a gravity pull vis-à-vis other systems through its size and the political weight of participating jurisdictions, potentially turning it into a hub or docking point for accelerated expansion (Haug, 2015: 11; for the EU ETS: Wettestad, 2014). At that point, however, the multilateral link progresses from evolving on an ad-hoc, case-by-case basis to a more centrally coordinated approach, which is described in greater detail in the next section.

5.2.3 Coordinated Multilateral Linking

As mentioned above, the rapidly growing complexity of ad-hoc linking arrangements, including potential spillover effects across indirect links, is likely to prompt consideration of the degree of coordination among parties aimed at governing, or at least guiding, the multilateral linking process. The same approaches that have been used to govern bilateral linking can also be harnessed for multilateral carbon market integration, ranging from soft coordination through mutual information procedures and the exchange of best practices to common design standards and formal institutions. Both varieties of governance deserve further elaboration with a view to the multilateral context.

Aside from the increased number of participants, soft coordination across three or more links will not be substantially different from coordination in a bilateral link, with the exception of a potential increase in the complexity of interactions and the resulting expedience of streamlining and centralization. Where, for instance, notification procedures in a bilateral relationship may function adequately without any central coordination, the proportional increase in procedural steps and data with a growing number of participants may favor the creation of centralized institutions, such as a central repository to facilitate the systematic collection of notified information, or a central administrative entity to support various procedures. Because of the cost advantages of economies of scale, a larger number of participants can lower the administrative burden and increase the value of joint institutions, thereby helping justify their cost. Still, while such streamlining can yield significant efficiency benefits, it also marks a partial departure from the tailored, individually agreed linking arrangements witnessed to date. Safeguards therefore need to be in place to prevent efficiency from undermining environmental integrity and a robust market. In particular, where coordinated governance facilitates participation, for instance by replacing lengthy negotiations with a more straightforward “opting-in” or accession process, adequate transparency standards and practices need to be in place to sustain confidence in the resulting market.

Credibility of each individual system and the overall market is critical, especially if the multilateral link is to expand further by attracting newly adopted or emerging trading systems.

If parties decide to move beyond soft coordination, the differences between bilateral and multilateral linking will become more pronounced. For one, hard coordination – whether in a bilateral or multilateral setting – will also have fundamental implications for the sovereignty of participating jurisdictions, and their flexibility to tailor their ETS and each linking relationship to their specific and evolving circumstances. Exploration of more centralized coordination will hence depend on whether its benefits outweigh the loss of sovereign control, and thus require a similar balancing decision to that preceding a bilateral linking arrangement (Haites, 2014: 11) or, in effect, any other international commitment. Multiple factors will play a role, including not only the direct trade-off between reduced domestic flexibility and improved governance of multilateral linking (thereby improving transparency, liquidity and the overall efficiency of the market, and potentially facilitating further expansion), but also other aspects such as preexisting cooperation in trade or regional integration, desire to bolster multilateral cooperation on climate change, diplomatic pressure from linking partners, reputational benefits, and so forth (Green et al., 2014: 1066; Ranson et al., 2015: 2 et sqq.) In the end, the functional benefits of improved coordination will not necessarily be in question. But many of the more extensive options outlined below have a bearing on contentious questions about moral responsibility and capacity that have also burdened international negotiations within the UNFCCC, for instance when it comes to centralized mechanisms for verification and oversight, or for evaluation of mitigation effort. Shifting such debates from the UN climate negotiations to a multilateral linking process, even one with more limited participation, is not going to eliminate the underlying political and distributional disagreements, and may thus prove equally difficult to negotiate.

Where parties can nonetheless muster the political will for more extensive governance cooperation, they can leverage a variety of approaches that may help improve the efficiency of the joint market and reduce the risk of unintended effects. Two options for centralized coordination of multilateral linking processes that have either already been applied in practice or have been proposed in the recent policy debate are harmonization of design and governance frameworks, and creation of common trading hubs. Each is set out in further detail in the following subsections.

Harmonized Design and Governance Frameworks

A particularly robust approach to coordination involves the alignment of ETS prior to linkage through a harmonized design and governance framework, limiting or eliminating differences between ETS. Because this ensures the greatest possible degree of compatibility (and will typically be part of a political process that is geared towards market integration), it can promote a favorable linking dynamic with a high degree of participation and coordination (Flachsland et al., 2009; Haites, 2014; Ranson & Stavins, 2013). As they harmonize system design, parties can also agree on a common set of design and governance standards, procedures, and institutions, allowing for substantial consolidation and hence efficiency gains. Any third parties subsequently interested in joining the multilateral link under such a harmonized approach would first have to align their system design with the common template,[31] motivated by the benefits they would enjoy, such as aggregate cost savings and greater liquidity.[32] Different options exist to formalize each new accession to the link, with the most likely being either approval of a linking arrangement between all parties (see below, Figure 4), or a more streamlined procedure in which only a common institution, such as a centralized committee or secretariat, has the power to enter an arrangement with new linking partners on behalf of all existing parties.

At the subnational level, a harmonized design and governance framework has already been successfully implemented within the WCI, which issued a common design template in 2010 guiding participating states and provinces in the establishment of their ETS ("Design for the WCI Regional Program"; for more detail, see Sec. 9.2.1).[33]

31 Not all design features need to be harmonized to leverage the benefits of consolidation, however, and parties may even resort to quantitative and qualitative restrictions on units to address concerns arising from such differences (for further detail, see also Sec. 5.2.2.2). But while such variances may not fundamentally affect the governance of the multilateral link, they will lessen its overall efficiency (Jaffe et al., 2007).

32 Additionally, a benefit from such cooperation could consist in mutual guarantees that members will not impose border carbon adjustments on each other (Keohane et al., 2015), although this latent sanctioning option has yet to be implemented in practice and is controversial in terms of its legality under international law.

33 RGGI has chosen a similar approach, with the only difference that participating jurisdictions have not had to enter separate linking arrangements, but rather have been linked by virtue of implementing the RGGI MoU and Model Rule (see Sec. 2.1). Similarly, the EU ETS – by virtue of its size and political weight – has served as a template for several ETS that have been established around the time of or after its entry into force, for instance in Norway or Switzerland, as well as in the accession candidate countries. In these cases, however, implementation of EU ETS legislation is mandatory as part of implementing the acquis communautaire, be it by virtue of EEA membership or the accession agreements.

As a result, linking the two WCI jurisdictions that have set up an ETS – California and Québec – proved to be relatively straightforward process, with only minor currency-related differences requiring attention in the linking arrangement. So far, the link is only bilateral, but once the province of Ontario has set up an ETS pursuant to the WCI design rules, it should be able to enter a direct link to the ETS in California and Québec without any major design adjustments.

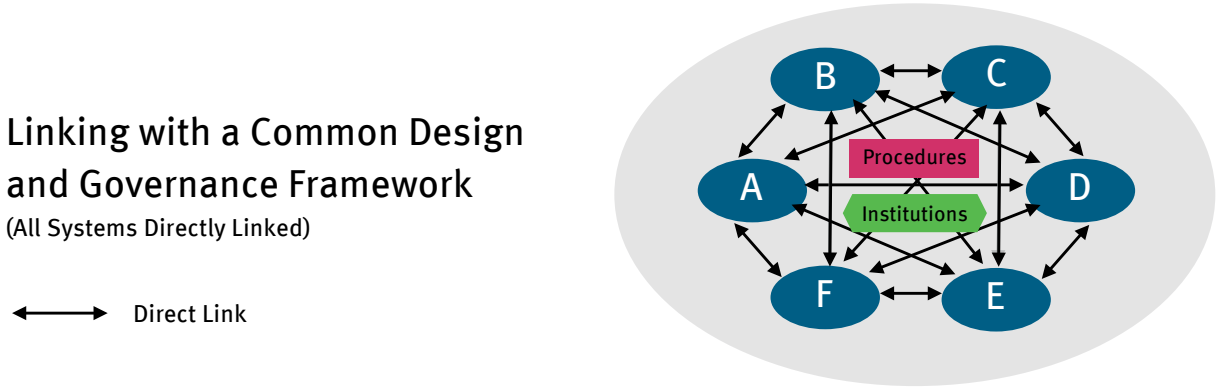

Figure 4: Linking with a Common Design and Governance Framework

Not only the ETS design as such, but also the linking arrangements should ideally be harmonized across the multilateral link in order to reduce inconsistencies and streamline their operationalization. Once the linking arrangements set out identical notification and consultation procedures, for instance, their implementation can be merged into one materially and temporally coherent process rather than a rapidly growing number of heterogeneous acts distributed across time. Because of the requisite level of coordination preceding development of a harmonized framework, this approach is also more amenable to the establishment of common institutions, such as a common registry or auctioning platform, which will further help consolidate individual governance elements and thus reduce overall complexity. As can be observed in cases such as the WCI, common institutions to administer the joint market can become an intrinsic feature of the harmonized design and governance framework: there, parties agreed to create a central institution – WCI, Inc. – to carry out a number of oversight, support, and management functions (for more detail, see Sec. 9.2.1).

Just as a robust bilateral link should set out transparent procedures to manage systemic change and external shocks, the harmonized linking framework should also anticipate further evolution of the market and its broader economic and political context to ensure compatibility over time (Haites et al., 2009). If system designs begin to diverge in ways affecting the viability of the multilateral link, the properties that render a harmonized design framework beneficial for multilateral linking – namely its ability to consolidate procedures and institutions at a central level – can become compromised. As with bilateral links, a strong case can be made for requiring that any design or governance changes be agreed jointly and implemented across all linked systems in order to safeguard the coherence and consistency of the overall framework.

Still, while increased harmonization between systems would offer a number of clear benefits, it is not reflected in the current trend towards greater heterogeneity in carbon pricing instruments and differences in ETS design (Marcu, 2015). Each trading system is the outcome of a complex and highly contingent policy process with numerous stakeholders and affected interests, whose accommodation will usually take precedence over attempts to align design features with other jurisdictions or a common design template. Where political support can be mustered nonetheless, harmonization will be easiest if it can occur at the time the trading system is first established. Subsequent adjustments – at least those affecting fundamental design elements – will be more difficult, both because of path dependencies in the design and implementation of any ETS, and the need to honor political compromises entered with domestic constituencies in the initial establishment process. Experience suggests that only smaller systems with a dominant interest in linkage are willing to cede proprietary design features in order to facilitate a link; it is doubtful that large established systems will have a similar inclination to implement far-reaching changes.

The increased difficulty of aligning vastly different systems once they have been made operational underscores the usefulness and importance of early cooperation on capacity building and best practices in emissions trading (Burtraw et al., 2013), such as the efforts promoted by the International Carbon Action Partnership (ICAP) and the World Bank Partnership for Market Readiness (PMR). Directly or indirectly, these initiatives will also promote some degree of harmonization and standardization of trading features.

Existing cases in which parties have opted for a common design and governance framework show that the required level of coordination is most likely to emerge under conditions of geographic proximity and a history of economic and political cooperation (Tuerk et al., 2009; Ranson et al., 2015). Membership in regional organizations of economic integration or environmental cooperation would thus be favorable predictors of future openness to multilateral linking with design and governance harmonization, given the already developed channels for negotiation and familiarity with joint institutions. And indeed, current markets integrating multiple jurisdictions have either emerged within a sovereign state or supranational organization, such as the EU ETS and RGGI, or in the context of prior regional cooperation, such as the trading system created under the WCI. What this suggests is that future clusters of linked markets could emerge in the vicinity of influential policy leaders such as the EU and China, or in cooperative forums such as North American Free Trade Agreement (NAFTA) or Northeast States for Coordinated Air Use Management (NESCAUM), the Association of Southeast Asian Nations (ASEAN) or Mercosur and the Andean Community (see below, Figure 5).

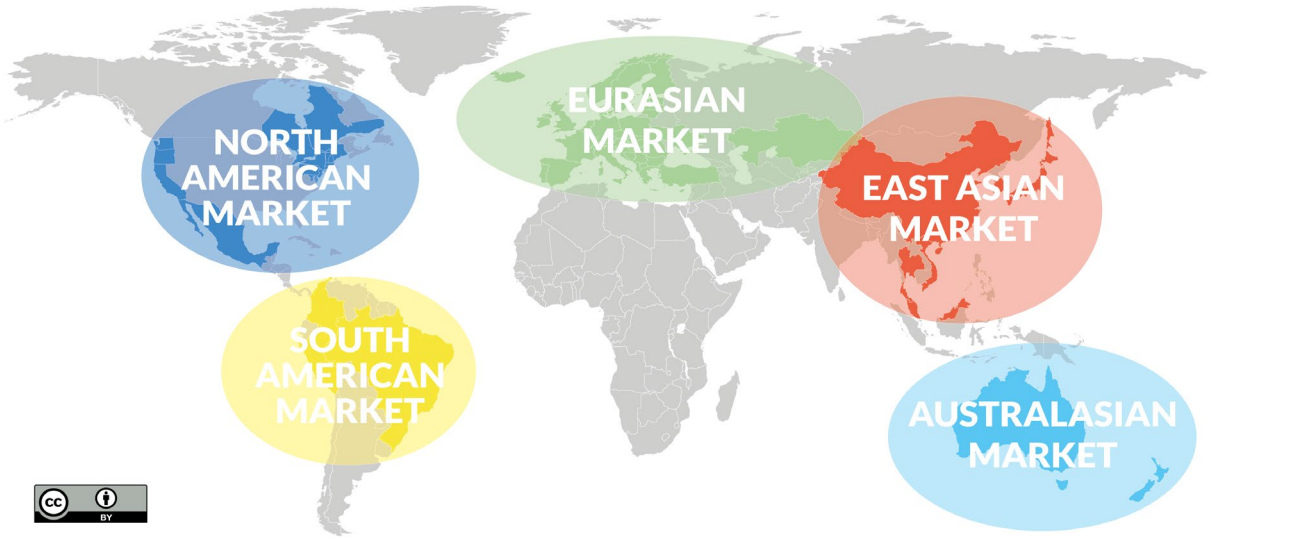

Figure 5: Possible Emergence of Carbon Market Clusters, or „Clubs“

Because the harmonized terms and conditions would be largely set by the initial parties in the linked market, subsequent participation, while voluntary, would require embracing the common design and governance features, or at least those features which have been designated mandatory for the integrity and operation of the multilateral link. Accordingly, jurisdictions joining over time would become “takers” of the common ETS design as a condition of membership in the “club”[34] (Marcu, 2015; Keohane et al., 2015). As the joint market expands, along with the aggregate political and economic weight of its participating jurisdictions, the cluster of trading systems may set in motion a “snowball” dynamic where new and emerging systems have a significant political and economic incentive to join. Yet while such a proliferation of carbon trading clusters or clubs would be favorable in terms of improving market efficiency within the regional coverage of linked systems, it may also result in the unintentional creation of a path dependency of its own, with each cluster becoming increasingly locked into its proprietary system design and governance approach as it expands. Harmonization within clusters may thus unintentionally impede harmonization between clusters. As the next subsection shows, however, another approach to multilateral linking may help bridge entrenched differences between individual markets, and potentially even clusters of linked trading systems.

34 The economic concept of a club as a “voluntary group deriving mutual benefits from sharing the costs of producing an activity that has public-good characteristics” and with sufficiently large gains from participation “that members will pay dues and adhere to club rules in order to gain the benefits of membership” (Nordhaus, 2015: 1340; Victor, 2015) can be applied both to a harmonized design and governance framework with membership conditional on adoption, as well as the idea of emissions trading hubs outlined in the next subsection (see below, Sec. 5.2.3).

Emissions Trading Hubs

Where ETS development is not coordinated from the outset, the political economy will usually be such that systems evolve from very different starting points and along varying timelines, reflecting diverse socioeconomic circumstances. Heterogeneity of system design is therefore an intrinsic tendency of any carbon market, and is expected to increase – rather than diminish – going forward (Marcu, 2015; Metcalfe et al., 2012: 110). In such a scenario, jurisdictions will rarely be ready to explore linkage at exactly the same time, calling for greater flexibility than a fully harmonized approach would generally allow. Parties may also be unwilling to surrender sovereign control over the design and governance of their ETS to a centralized decision making process despite the benefits greater harmonization would allow. In such cases, and where design choices and governing institutions are already too deeply entrenched to permit ready harmonization (see e.g. the example of ETS clusters, or "clubs", in Sec. 5.2.2 above), an alternative approach to facilitate multilateral linking can involve the creation of a common hub. One or more centralized hubs could be established at regional or global level by a group of jurisdictions, such as the EU and its linking partners, or by an existing international forum such as the Major Emitters Forum (MEF) or the International Carbon Action Partnership (ICAP).

Unlike a harmonized design, which would guide and possibly constrain jurisdictions in the design of their ETS and – as just outlined – ideally do so from the outset, a hub could emerge at any point in time and create a bridge between systems with potentially very different designs. An essential advantage of such a hub, therefore, would be that it allows jurisdictions to retain greater control over their own ETS, especially if it only sets out minimum definitions, standards and procedures (although if parties are willing, they could also adopt a more sophisticated system of rules and institutions, potentially as a further step as the hub matures). When different ETS are ready to link with other systems, they can "dock" into this hub, provided they meet all the conditions specified for accession. As a result of opting in, they would become linked to all other ETS that have already joined the hub, as well as any future systems that meet the entry requirements and decide to join.

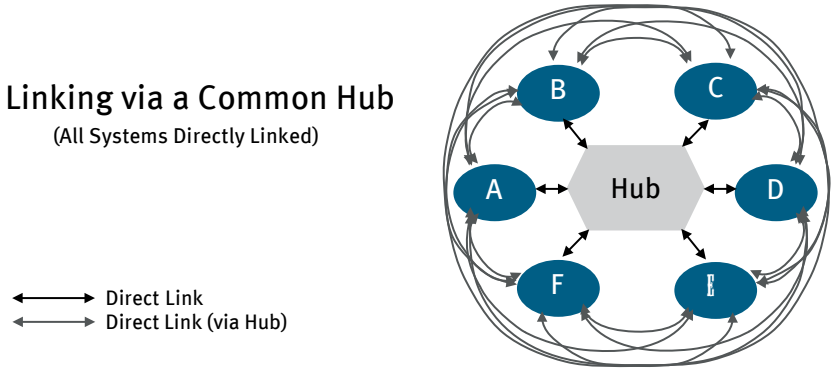

Figure 6: Linking via a Common Hub

Rather than addressing the conditions of a link on a case-by-case basis, with its attendant complexity, transaction cost, and heterogeneous outcomes, they could be set out in a blanket list of participation criteria, which, when met, either results in automatic membership or sets in motion a process of accession. Conditions for accession to the hub could consist of minimum requirements regarding the stringency and ambition of participating ETS, as well as minimum design specifications. Conceivably, these could include a "minimum list" of design requirements, such as transparency and MRV standards; a "negative list" precluding certain problematic design features, such as an intensity target; or a "positive list" of acceptable or recommended design features (Keohane et al., 2015). Beyond such joint definitions and standards, a hub could also offer specific services to facilitate trading with other participating ETS, such as a mechanism to track allowance transfers through the hub and provide relevant information to the domestic registries of each acceding jurisdiction.

Entry barriers to accession could be reduced by simplifying the process of joining the hub, for instance by rendering it automatic upon adherence to the membership criteria and a simple application procedure, possibly involving a vote by a central decision-making body with delegated powers.[35]

35 An example is the International Monetary Fund (IMF), which requires a vote by its Board of Governors to decide on an application for membership by a third country, without case-by-case negotiations or parliamentary ratification procedures, see Art. II Sec. 2 of the Articles of Agreement of the International Monetary Fund, Bretton Woods, New Hampshire, 22 July 1944, in force 27 December 1945, in conjunction with Sec. D-1 of the Rules and Regulations of the International Monetary Fund, 62nd Issue, May 2011. As a condition for membership, countries are required to share information on financial, fiscal, economic, and currency exchange policies, adhere to a code of conduct found in the Articles of Agreement, pay a quota subscription, and refrain from restrictions on exchange of foreign currency. See also IMF, 2015.

A specified waiting period would allow other parties, a central institution or third-party verifiers to ascertain whether the accession conditions have been met, or – both in the case of accession and withdrawal – would give market participants an opportunity to prepare for potential price and revenue impacts. More formal accession procedures could be modeled after those in use for regional organizations of economic integration, requiring either formal ratification by all parties, as is the case with EU enlargement, or formal ratification by the acceding party and a formal approval process by a central entity with legal personality and conferred powers, as is the case in WTO accession procedures.[36] While the latter options will offer greater legal certainty, they also entail a more onerous process, are less easily modified if circumstances require, and may even limit the scope of eligible participants.[37] As with bilateral linking, interest in simplicity and flexibility tends to therefore compete with the objectives of predictability and robustness.

Even ETS with substantial differences in design and level of ambition could be accommodated in a common hub if the latter includes mechanisms to manage and account for such divergence. Contagious design features or deficiencies in the environmental integrity of a system might normally raise doubts about the compatibility of systems and therefore preclude a link. Their undesirable effects on the linked market – including the possibility of large asymmetrical allowance flows in the event of unforeseen developments or even moral hazard for systems to weaken their environmental integrity in order to increase net revenue from trading – could be partially curtailed or addressed with quantitative restrictions that limit the allowance flow, for instance by setting a quota on net allowance transfers.[38] Once a volume of allowances equal to the specified quota has been transferred from one ETS to any other ETS linked to the common hub, no more allowances could be purchased from the originating system, at least until its entities have purchased allowances from other systems and thereby reduced the balance of net allowance outflows. In such a framework, the quota could apply in perpetuity, or be reset in specified intervals, for instance annually or at the outset of multi-year trading periods, allowing new net transfers. Critically, while such a quantitative restriction would contain any distributional impacts resulting from the accession of differently robust ETS to the common hub, thereby making the likely effects more predictable and potentially helping assuage political concerns (Roßnagel 2008: 397), it also comes at a price, namely limiting the ability of the joint market to allocate mitigation efforts and thus diminishing the benefits of linking (Jaffe & Stavins, 2007; Lazarus et al., 2015). Moreover, while these mechanisms allow for linkage between systems with some heterogeneity – where compatibility has been considered insufficient to warrant a full and unrestricted link – they still presuppose a minimum degree of compatibility, which in turn is based on the assumption that fungibility of units derives from their equal, or largely identical, mitigation value. If the current trend towards greater ETS heterogeneity continues to increase, such assumptions may become increasingly difficult to support.

An alternative mechanism to facilitate linking between ETS with different system designs and ambition levels departs from this assumption of fungibility of mitigation effort, and instead is based on a comparison of effort and corresponding adjustments. It involves the use of discount factors, ratios or exchange rates, which can be applied in a way that favors robust systems and penalizes systems with weak integrity, be it insufficient environmental ambition, lacking credibility of enforcement, or other problematic design features (Burtraw et al., 2013: 6). Units from systems that are considered insufficiently robust might thus be subject to a discount or disadvantageous exchange rate, reducing their value for compliance in other systems without altogether sacrificing fungibility.

36 Article XII of the Agreement Establishing the World Trade Organization (WTO Agreement), Marrakesh, 15 April 1994, in force 1 January 1995, affords "[a]ny state or customs territory having full autonomy in the conduct of its trade policies" eligibility to accede to the WTO "on terms agreed between it and WTO Members"; these terms are negotiated with a Working Party established by the General Council and open to all existing Members, and through bilateral negotiations with any interested Members, resulting in an "accession package" with schedules of market access commitments. Once both the Working Party's Draft Report and Protocol of Accession and the market access commitments in goods and services are completed to the satisfaction of members of the Working Party, the "accession package" is adopted at a final formal meeting of the Working Party. If either the General Council or the Ministerial Conference approves the package, a is enshrined in a Protocol of Accession which the applicant can sign and ratify. Following a period of 30 days after notification of ratification, the applicant becomes a full Member of the WTO. See also WTO, 2015.

37 Limitations can arise with regard to subnational jurisdictions, for instance, because international and domestic constitutional law generally deny them international legal personality and thus the ability to enter formal international commitments. In other cases, such as the United States, political divisions tend to prevent the 2/3rd majority vote in the Senate required to ratify an international treaty, thus becoming a de facto barrier to a multilateral link based on formal international treaty-making.

38 Such a quota system would be similar to a gateway mechanism proposed to facilitate links between jurisdictions that are parties to the Kyoto Protocol and have entered quantitative emission limitation and reduction objectives in its Annex B, and jurisdictions that have adopted no such international commitments. In that context, the mechanism would have created a repository for Assigned Amount Units (AAUs) from the Annex B party, with any allowance transfers to non-Annex B jurisdictions resulting in AAUs being stripped and held in the repository, whereas any incoming allowances would be assigned an AAU from this repository. In net terms, such a clearinghouse would have to ensure that net allowance flows can only take place from Annex B parties to non-Annex B parties; see e.g. Sterk et al., 2006: 63 et sqq.

Not only would such a ratio or exchange rate reduce the attractiveness of what might be considered "subprime carbon units" (Chan, 2009) and thereby limit unit flows across systems, capping distributional impacts in a way similar to quantitative or qualitative restrictions, but they would also create an incentive for systems to improve their environmental integrity so that their units may be traded without penalty. Also, proponents argue that establishing such an approach that provides fungibility of units through comparability of effort rather than equalization of units would make it politically more viable and quicker to implement (Widge, 2015).

Although each ETS could theoretically introduce its own set of ratios or exchange rates and apply these independently to units from other systems, the ensuing patchwork of unilateral approaches would result in similar complexity as uncoordinated multilateral linking. It could also create substantial opportunities for arbitrage, which – while potentially useful to secure liquidity in narrowly traded markets – would afford profits at a scale that may not represent the best allocation of resources. Reflecting the practice in modern currency markets, therefore, a harmonized framework of ratios or exchange rates would significantly increase transparency and lower transaction costs. Also, the process of defining exchange rates is complex, and its outcome will have significant impacts on the direction and volume of unit flows, and therefore on abatement in different jurisdictions. If they are set wrong, they can thus undermine the economic benefits of linking and even weaken the overall environmental outcome (Lazarus et al., 2015).

Probably the most comprehensive exploration to date of a hub-based architecture for carbon trading systems employing exchange rates is the concept of "Networked Carbon Markets" (NCM) advanced by the World Bank Task Force to Catalyze Climate Action (see below, Figure 7). It would introduce a multi-tiered, risk-based carbon asset rating process to guide the central definition of exchange rates and provide a frame of reference for carbon value (World Bank, 2013). Jurisdictions that have introduced carbon markets could voluntarily "opt in" if they agree to having their carbon units (or "carbon asset classes") rated by independent private rating agencies on the basis of a standardized process and formula.[39] At the heart of this proposal, thus, lies the independent risk-based evaluation of different carbon trading initiatives to determine their "mitigation value" (MV), a value distinct from the "compliance value" (CV) assigned by a national or international regulator, or the financial value (FV) established through supply and demand, liquidity and other factors in the market (Macinante, 2015). This assessment of mitigation value would be dynamic and updated periodically to reflect changes in the underlying circumstances. As proposed, it would not only take into account risks relating to the actual policy in question and its characteristics, but also risk relating to the characteristics of the broader climate policy framework in the jurisdiction and its contribution to global climate change (World Bank, 2014b).

Underlying this approach is the notion that linked carbon markets can only expand beyond individual clusters if they can draw on a common metric such as the relative mitigation value of carbon units, taking into account both the quality of the program generating those units as well as the jurisdiction-level target and progress towards global climate change mitigation (World Bank Group, 2014a). Specifically, it breaks these three factors down as follows:

- *Program Level Rating*: Carbon integrity risk, based on the risk that the policy or program will not achieve its stated carbon emission reduction target;
- *Jurisdiction Level Rating*: Policy and regulatory risk, based on the credibility of the jurisdiction's own stated climate change mitigation target or pledge, and the risk that it will not meet that target;
- *Global Level Rating*: Adjustment for ambition, or relative climate mitigation contribution.

Part of this rating exercise would thus involve a probabilistic ex ante assessment of the likelihood that a specified greenhouse gas mitigation objective is achieved. For the ambition adjustment, in turn, some observers have suggested measuring the mitigation effort embodied in a tradable unit against an empirical benchmark, such as its contribution to achievement of an Intended Nationally Determined Contribution (INDC), and the extent to which that INDC represents an equitable share of the collective effort needed to meet an agreed target such as limiting anthropogenic warming below 2 °C (Kartha, 2014; Keohane et al., 2015). Different approaches to the rating process are under discussion, although observers seem to broadly agree that it should be based on an approved, transparent and consistent methodology, applied by independent rating agencies that are themselves accredited based on uniform criteria, and remunerated in a way that avoids conflicts of interest.

39 The proposed formula reads as follows: Rating = f {program rating, credibility rating, ambition adjustment} (Hughes, 2014); its components are explained in greater detail in the following paragraph.

A set of designated institutions would provide the common hub, and render the foregoing rating system operational. In particular, an International Carbon Asset Reserve (ICAR) would convert ratings into exchange rates, and serve as a market maker to improve liquidity. Additionally, by being issued a specified share of units from each participating jurisdiction as a condition of membership,[40] ICAR could also help pool risk-mitigation efforts by its participants, for instance helping address price extremes by absorbing or releasing unit supplies in the event of market shocks.[41] Smaller markets, in particular, would benefit from the increased liquidity and buffering effect afforded by such an institution, while larger markets would likely value the strategic benefit of a backup source for unit reserves in case domestic price and risk management mechanisms prove insufficient. But by having access to a reserve of pooled units, ICAR could also be empowered to address risks such as non-permanence of carbon units, underperformance of mitigation activities, or invalidity of traded units (Füssler et al., 2015: 11). In addition to ICAR, the concept of Networked Carbon Markets also proposes establishing an International Settlement Platform to track cross-border trading, manage information and increase market transparency, help manage counterparty risk, and exercise certain supervisory functions to prevent fraud.

Importantly, the rating approach would allow continuous adjustments to the mitigation value of participating jurisdictions, allowing changes in the underlying circumstances to be reflected in the linked market without necessitating complicated changes to the entire framework. Where needed, adjustments could occur in periodic intervals, or triggered by external developments, such as changes in macroeconomic indicators. Theoretically, the ability to adjust mitigation value on the basis of a rating would even allow linkage to policies other than an ETS, such as carbon pricing through taxes, or even regulation through performance standards. Although this gives rise to its own set of challenges, for instance the need to translate a fixed price or carbon-intensity rate standard into absolute emissions, it does offer new avenues for cooperation in an increasingly heterogeneous landscape of domestic climate policies, and could therefore deliver even greater efficiency gains than a multilateral link purely between ETS (Metcalfe et al., 2012).

Yet while the departure from an approach premised on the compatibility of systems and stipulating the equivalence of units could offer interesting perspectives such as those described in the previous paragraph, the need to compare mitigation efforts of participating jurisdictions will also give rise to unavoidable debate, and may limit willingness to join the hub. Comparison of efforts raises significant political and methodological challenges, and these same challenges have also contributed to acrimony and slow progress in the UNFCCC negotiations. Unsurprisingly, the originators of this proposal have themselves conceded that the idea of a rating process, especially one that scrutinizes the ambition of domestic climate change mitigation efforts, will be "very controversial" (World Bank, 2013).

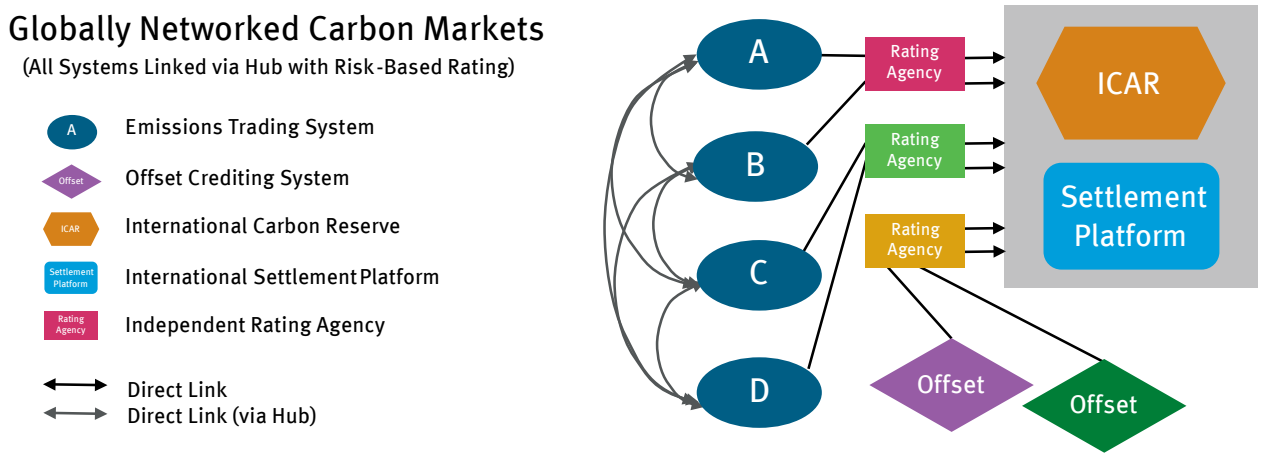

Figure 7: Globally Networked Carbon Markets (based on Hughes, 2014)

40 On options for the capitalization of the reserve, see Füssler et al., 2015: 16.

41 In the event that a defined surplus of units is exceeded in any participating jurisdiction, indicated by a price or volume trigger, ICAR would be required to buy units from that jurisdiction if the local regulator makes a corresponding request. The acquisition of units would occur through an ascending auction, where the price at which permits are purchased is the lower the market price or the rating-based price, whichever is lower; conversely, if a jurisdiction experiences a demand shock and prices exceed a specified threshold, ICAR would be required to lend units back to the regulator, provided certain eligibility criteria for borrowing have been satisfied. In order to safeguard the environmental integrity of the affected system, its regulator must commit to returning the borrowed if it does not wish to endanger its rating.

5.2.4 Hybrid Approaches

Finally, as mentioned earlier in this section, the observed trend towards heterogeneity of domestic and regional mitigation efforts will also carry over into multilateral linking and diminish the likelihood that any such linking can proceed within pure conceptual categories. Rather, different pathways to multilateral linking are likely to evolve in parallel, giving rise to potential overlap. In a multilateral link between geographically adjacent jurisdictions which have all implemented a common design and governance framework, for instance, one participant may nonetheless decide to enter into a bilateral link with a third jurisdiction. A number of factors could motivate such individual action, for example close historical ties or an overriding strategic interest. As with the examples of ad-hoc linking described in Subsec. 5.2.1.3, such individual links emerging out of a context of multilateral linking will result in a number of indirect links and therefore contribute to uncertainty and complexity in the overall market (see below, Figure 8). This underscores the overriding importance for any linking arrangement, whether bilateral or multilateral, to anticipate future linkages entered by its parties, and to set out conditions or guidelines to promote transparency and limit negative impacts (see above, Subsec. 5.2.1.3). Other than that, however, the governance needs will not differ materially from those already described in the context of bilateral linking as well as the various pathways to multilateral linking above.

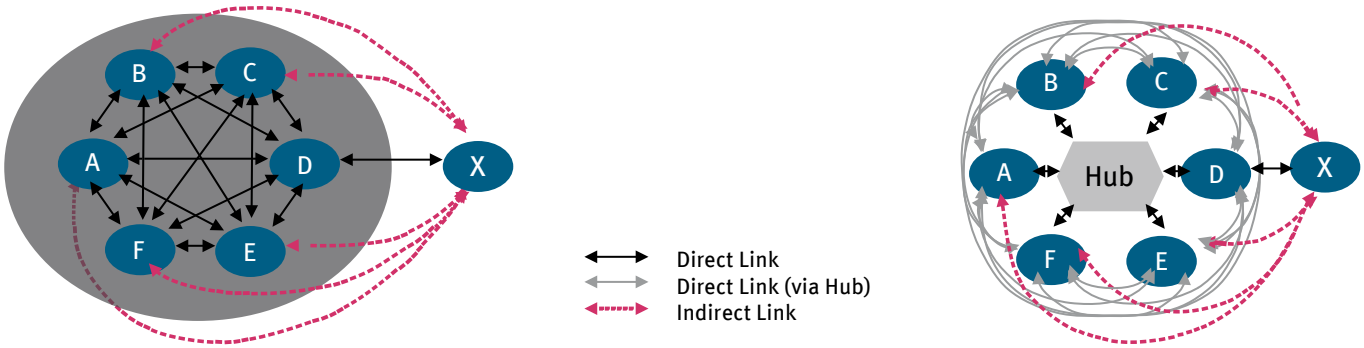

Figure 8: Asymmetric Expansion of a Carbon Market "Cluster" or "Hub"

6 Termination of the Linking Agreement

6.1 Introduction and Key Distinctions

As the EU has experienced with the EU ETS, setting up and maintaining an ETS is a learning process. Emissions trading schemes change and evolve over time, as political priorities (or political majorities) change, as new insights about the functioning of ETS emerge, be it through research or by learning from other trading schemes, as the scheme adapts to changing economic, social or technological circumstances (e.g. changing emission profile), or as other regulatory framework conditions change. Thus, ETS are evolving systems. Thus, it should come as no surprise that maintaining the link between two linked schemes over time can be a challenge linking partners may need to address, potentially using mechanisms or institutions in charge of reviewing and considering implications of changes in individual systems (Ellis et al., 2006: 19; Haites 2008: 6).

However, it is unreasonable to assume that established links are immutable (Pizer/Yates, 2013: 2). Depending on the significance of the changes undertaken in one of the linked schemes,[42] divergences within the linked emissions trading systems, changes in economic conditions or other circumstances, unexpected events or developments or changes in a linking partner's sphere (such as a new government with a different policy focus) can lead to a situation in which one of the partners or all partners want to terminate their cooperation under the linked emissions trading scheme.

The following chapter examines how such termination can take place, which problems the termination can (potentially) cause and how they can be solved.

42 Haites/Wang (2006) and Haites (2014) focus on the impact of the changes on the environmental effectiveness of the emissions trading scheme, pp. 11ff.

In that regard, the following features and constellations need to be differentiated:

- Which type of legal basis is the linked emissions trading system based on?
  - non-binding legal agreements, based on for example, a Memorandum of Understanding;
  - an international treaty;
  - unilateral recognition of certificates of the linked scheme;
  - bilateral recognition of the foreign certificates.
- Is the termination pursued unilaterally or consentaneously by all linking partners?
- Is the termination sought temporarily (suspension) or permanently (cancellation)?

6.2 Conditions for the Termination of the Linking Agreement

The conditions for the termination of the linking agreement can be determined depending on the legal nature of the linking agreement's legal basis.

6.2.1 Non-binding basis

If the linking of emissions trading schemes results from one scheme's unilateral recognition of foreign certificates from another emission trading system as eligible for compliance obligation in the domestic scheme, this domestic scheme can annul its recognition and therefore terminate the connection at any time without having to give any reasoning. Such a construction does not have the capacity to bind participating jurisdictions and allows for unilateral termination of the trading link without prior consent of other parties (Mehling, 2007: 47). Furthermore, the domestic scheme terminating the link does not have to comply with any public international law provisions. At the most, the scheme terminating the connection has to take into account the legitimate expectations of its own covered entities and financial intermediaries who may have acquired foreign certificates as a trading asset or to use for compliance purposes, and now will be forced to sell these assets (see for further details Chapter 6.4).

If the linking of emissions trading schemes is based on a bilateral or multilateral recognition of allowances issued in the respective schemes, a partner can also cancel its recognition at any time and without giving any reason and thereby end the association with the linked emissions trading system. In that case, however, the partner needs to be aware of the fact that other partners will likely react by also cancelling their recognition of the foreign system's certificates. Chapter 6.4 will examine whether the partner cancelling its recognition needs to take such an expected reaction of the former partners into account during the decision-making process in light of the legitimate expectations of entities covered by the emissions trading system and other actors who intended to sell their certificates to participants of the other emissions trading systems.

If the linking of emissions trading systems is based on a non-binding decision such as a Memorandum of Understanding, this cooperation arrangement does not bind the partners when it comes to terminating the link between emissions trading schemes. The partners decided not to conclude an agreement that establishes legal obligations, but instead deliberately opted for a non-binding arrangement. One consequence of this arrangement is that either partner can terminate their participation in the linked emissions trading system at any time and without giving reasons for the termination. It is possible that the linking partners would include sections in the non-binding linking agreement expressing the partners' intent to consider the legitimate interests of the other partners, to inform the partners at an early stage if they plan to terminate the cooperation and not to conduct the termination before a certain period of time after the announcement has elapsed. However, whatever procedures are foreseen for the termination, such declarations are not legally binding and the aspired considerate behaviour is not legally enforceable.

6.2.2 International Treaty

If states' emissions trading schemes are linked through a legally binding agreement, such an agreement - no matter how the agreement is called - constitutes an international treaty governed by public international law (for details see Haites, 2014: 19). In this case, parties to such a treaty will include rules in the respective parts of the agreement, regulating the specific conditions for a termination.

These rules would regulate the terms and conditions and deadlines for a valid termination of the agreement and include rules on the (temporary) continuation of certain legal obligations.

As a rule, all treaties in force are binding upon their parties and must be performed by them in good faith (pacta sunt servanda, Article 26 Vienna Convention on the Law of Treaties, VCLT). If there is consensus on the termination of the link, the parties can agree to cancel such an international agreement by consensus at any time and without cause. An international treaty can, however, also be terminated unilaterally by either party in conformity with the respective treaty provisions. This follows from Article 54(1) VCLT.[43] It is up to the parties to regulate whether a proper notice of termination is required and to set up rules on the terms, conditions and deadlines for a termination.

If the contract does not specify particular requirements for the termination, Article 56(1) VCLT (Denunciation of or withdrawal from a treaty containing no provision regarding termination, denunciation or withdrawal) is applicable. According to this provision, "[a] treaty which contains no provision regarding its termination and which does not provide for denunciation or withdrawal is not subject to denunciation or withdrawal unless:
(a) it is established that the parties intended to admit the possibility of denunciation or withdrawal; or
(b) a right of denunciation or withdrawal may be implied by the nature of the treaty." Article 56(2) VCLT regulates the temporal requirements, noting that "[a] party shall give not less than twelve months' notice of its intention to denounce or withdraw from a treaty under paragraph 1."

In addition, "extraordinary" termination in response to a material breach of a treaty by one of the parties cannot be ruled out and can happen at any time. This follows from Article 60 VCLT (Termination or suspension of the operation of a treaty as a consequence of its breach).[44] The requirement of an extraordinary termination is a "material breach" of the treaty by one party. In this context, a violation of "a provision essential to the accomplishment of the object or purpose of the treaty" by a party constitutes a material breach.

As a rule, "[a] fundamental change of circumstances which has occurred with regard to those existing at the time of the conclusion of a treaty, and which was not foreseen by the parties, may not be invoked as a ground for terminating or withdrawing from the treaty" (see Article 62(1) VCLT). However, in exceptional cases a fundamental change of circumstances may be invoked as a ground for terminating or withdrawing from the treaty. This is the case if "the existence of those circumstances constituted an essential basis of the consent of the parties to be bound by the treaty" and "the effect of the change is radically to transform the extent of obligations still to be performed under the treaty".

In view of the consequences of the termination of a contract, Article 70(1) VCLT provides that the termination of a treaty "releases the parties from any obligation further to perform the treaty" but "does not affect any right, obligation or legal situation of the parties created through the execution of the treaty prior to its termination."

This rule, however, only affects the legal situation of the parties to the international treaty, i.e. the subjects of international law. It does not affect the participants in the emissions trading system (cf. Chapter 6.4).

The parties to a treaty can also include rules distinguishing between a final termination and a temporary suspension of the link as a whole or of individual components of the linked emissions trading scheme. In addition, a treaty provision could stipulate that a temporary suspension is a necessary condition for a subsequent and definite termination of the linking agreement.

43 Article 54 Vienna Convention on the Law of Treaties ("Termination of or withdrawal from a treaty under its provisions or by consent of the parties"): "The termination of a treaty or the withdrawal of a party may take place: (a) in conformity with the provisions of the treaty; or (b) at any time by consent of all the parties after consultation with the other contracting States", Vienna Convention on the Law of Treaties, Concluded at Vienna on 23 May 1969, https://treaties.un.org/doc/Publication/UNTS/Volume%201155/volume-1155-I-18232-English.pdf; the Vienna Convention on the Law of Treaties has 114 parties, including most EU Member States, Switzerland, Japan and Australia. The USA has not ratified the VCLT. However, most provisions of the VCLT have customary international law status and are thus binding also on states that have not ratified the VCLT, see for details Heintschel von Heinegg, in: Ipsen, 2004.

44 Article 60 VCLT: "1. A material breach of a bilateral treaty by one of the parties entitles the other to invoke the breach as a ground for terminating the treaty or suspending its operation in whole or in part. 2. A material breach of a multilateral treaty by one of the parties entitles: (a) the other parties by unanimous agreement to suspend the operation of the treaty in whole or in part or to terminate it either: (i) in the relations between themselves and the defaulting State, or (ii) as between all the parties; (b) a party specially affected by the breach to invoke it as a ground for suspending the operation of the treaty in whole or in part in the relations between itself and the defaulting State; (c) any party other than the defaulting State to invoke the breach as a ground for suspending the operation of the treaty in whole or in part with respect to itself if the treaty is of such a character that a material breach of its provisions by one party radically changes the position of every party with respect to the further performance of its obligations under the treaty. 3. A material breach of a treaty, for the purposes of this article, consists in: (a) a repudiation of the treaty not sanctioned by the present Convention; or (b) the violation of a provision essential to the accomplishment of the object or purpose of the treaty [...]."

Articles 57 VCLT (Suspension of the operation of a treaty under its provisions or by consent of the parties) and Article 58 VCLT (Suspension of the operation of a multilateral treaty by agreement between certain of the parties only) contain similar rules for a temporary suspension of the treaty.[45]

An international treaty on the linking of emissions trading systems should regulate termination requirements and the consequences of a termination. When determining the valid grounds for termination, it may be particularly useful to distinguish different types of material breaches and determine different types and levels of terminations for the respective violation of the treaty. In that respect, the following constellations could be distinguished:

- Violations of the linking agreement that can be healed and which do not put the integrity of the linked systems at risk, or otherwise jeopardize the objectives of the linking agreement, and which therefore should not lead to a discontinuation of the link (e.g. violation of information-sharing obligations),
- Violations of the linking agreement that can and must be healed, but that do not immediately put the integrity of the linked systems at risk – could possibly result in a suspension of the link until the violation has been resolved. Examples in this category might include fundamental changes to the MRV rules or broader compliance rules, or the introduction or substantial change of price containment measures, without prior information or consultation,
- Grave violations that put the integrity of the linked system at risk, and that are symptomatic of a loss of trust and goodwill among the linked schemes – should necessarily lead to the termination of the link (see Article 60 VCLT). Examples in this category could include unilateral and substantial changes to the cap in one of the linked systems, entering into linking negotiations with a third party without prior notice or consultation, or measures that limit or constrain the eligibility of foreign allowances for compliance in the domestic system.

Overall it can be held that a formal and binding international treaty provides a higher degree of transparency and certainty to the market participants. However, a less informal, non-binding arrangement is often accompanied by an amendment of each participating party's national legislation and thus backed by the force of law.[46] While a non-binding arrangement has the drawback of allowing for a sudden termination of the link by one of the participating parties, termination is also an option under a binding treaty. Thus, the differences between the two linking options might therefore not be too great (Schüle/Sterk, 2008: 17; see also, for example Montini, 2014: 13).

6.3 Mechanisms and Procedure for the Termination of a Linking Agreement

6.3.1 Schedule and Timing of the Termination

The nature of the legal basis establishing the link between emissions trading systems is also critical for the procedures that need to be followed for terminating the link. Such procedures include, for instance, the period of time required for a valid termination of the link and the steps that need to be taken to implement the termination.

If the link is not based on a legally binding agreement, the linking partners are free to schedule the termination process and to determine further steps based on their own preferences.

If the link is established through an international treaty, this treaty would typically regulate that the terminating partner needs to comply with certain minimum periods of notice, and that despite the termination, a number of legal obligations would continue to apply.

45 Article 57 VCLT: "The operation of a treaty in regard to all the parties or to a particular party may be suspended: (a) In conformity with the provisions of the treaty; or (b) At any time by consent of all the parties after consultation with the other contracting States."

Article 58 VCLT: "1. Two or more parties to a multilateral treaty may conclude an agreement to suspend the operation of provisions of the treaty, temporarily and as between themselves alone, if: (a) The possibility of such a suspension is provided for by the treaty; or (b) The suspension in question is not prohibited by the treaty and: (i) Does not affect the enjoyment by the other parties of their rights under the treaty or the performance of their obligations; (ii) Is not incompatible with the object and purpose of the treaty. 2. Unless in a case falling under paragraph 1(a) the treaty otherwise provides, the parties in question shall notify the other parties of their intention to conclude the agreement and of those provisions of the treaty the operation of which they intend to suspend."

46 See Chapter 2.1.1 for the consequences of New Jersey's decision to withdraw from the RGGI MoU; see for details also Rodriguez/Dobbins (2014) or Pizer/Yates (2014).

6.3.2 Process for the Termination of the Link between two ETS

Legal Requirements and Formal Procedure for the Termination

As described above, if the contract contains no provision regarding its termination, it can be terminated with at least twelve months notice if the possibility of denunciation or withdrawal is either implied by the nature of the treaty or intended by the parties (Article 56(1) and (2) VCLT). According to Article 67(1) VCLT, the notification must be made in writing. Furthermore, a party which invokes a ground for terminating the treaty must notify the other parties and indicate the reasons for the termination (see Article 65(1) VCLT). Subsequently, the other parties are generally entitled to a period of no less than three months to raise an objection against the notification.

If a party raises an objection within this period, "the parties shall seek a solution through the means indicated in Article 33 of the Charter of the United Nations."[47] If no solution has been reached within twelve months after the date on which the objection was raised, the procedures for judicial settlement, arbitration and conciliation set out in Article 66 VCLT are applicable.

If no party raises an objection within this period, the party intending to terminate the treaty may proceed to take to notified measures in accordance with the form requirements set out in Article 67(2) VCLT. [48]

Gradual or Sudden Termination?

One procedural question that is both a legal and an economic matter concerns the most appropriate phasing and sequencing of the termination. In a nutshell, the question is whether the termination is better done in a gradual, step-by-step process, or whether a sudden, one-off clear cut is more effective.

In principle, a gradual step-by-step process would provide ample opportunity for speculation, arbitrage and market abuse, especially since the drivers in this process are all political and legal decisions. Hence the market itself will also be driven by speculation on political positions. This holds particularly if the end result of the process is unclear, i.e. whether the crisis will merely lead to a temporary suspension, a restriction of sorts, or to a complete and permanent termination of the link. In this sense, a sudden, one-off termination has the advantage of being more transparent, and less susceptible to gaming and speculation.

In both cases, it is unavoidable that this change in the market will force market participants to revise their expectations. As is the case with the establishment of the link itself, also the decision to terminate the link will create winners and losers, as some market participants see their expectations betrayed. The advantage of a sudden, unannounced termination is that it happens in a more transparent way, leaving less room for speculative trades. But even in the case of a sudden and unannounced termination, this does not mean that the termination will be entirely unexpected. Given that the termination of a link will be the result of an erosion of trust among the two systems, and possibly one or more violations of the joint set of rules, at least some, if not the majority of market participants would have seen it coming, and will have adjusted their trading strategy accordingly.

One practical argument of a phased termination, and possibly even a prior announcement of the intention to de-link over a longer period of time, is that it will make it easier to adhere to the trading of futures contracts between the linked systems, where such instruments exist.

In terms of the legal preconditions, a link that is based on an international treaty will most likely establish a procedure for reconciling differences prior to the termination of the link, and foresee a prior-notice period of several months for the termination to become effective. Thus, if the link is based on an international treaty, the sudden and unanticipated termination will only be possible in the case of an "extraordinary" termination in response to a material breach of the agreement, i.e. a grave violation that puts the integrity of the linked system at risk. For a link based on a Memorandum of Understanding, the formal hurdles to a sudden, unilateral termination will be lower.

47 Article 33 UN Charter (Pacific Settlement of Disputes): "1. The parties to any dispute, the continuance of which is likely to endanger the maintenance of international peace and security, shall, first of all, seek a solution by negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of their own choice […]."

48 Article 67(2) VCLT: "Any act […] terminating […] the operation of a treaty […] shall be carried out through an instrument communicated to the other parties. If the instrument is not signed by the Head of State, Head of Government or Minister for Foreign Affairs, the representative of the State communicating it may be called upon to produce full powers."

6.3.3 Treatment of Foreign Allowances during the Termination

A core characteristic of linked emissions trading systems is that foreign allowances can be used for compliance in the domestic trading system. In the case that a link is terminated, this option is revoked. There are different options how this can be implemented in practice:

- **Foreign certificates are suspended from trade, and cannot be used for compliance purposes in the domestic system**. In this most extreme case, foreign certificates would effectively become entirely useless for domestic holders, and thus lose their entire value.
- Following their suspension from trade, in a one-off transaction, **all foreign certificates are exchanged for domestic allowances**, either as a central transaction administered by the registry, or as a process whereby account holders actively have to request the conversion. While this solution protects the needs and interests of domestic account holders, the obvious implications for the regulator are a) where the additional domestic allowances should come from that are needed for the exchange, and b) what should happen to the foreign allowances that end up on the domestic national account following the exchange.
- **Foreign certificates are suspended from trade, but are still eligible as a compliance tool**. The remaining foreign allowances that are already held by account holders in the domestic system can be used up, but no new foreign allowances can be brought into the domestic scheme. This means that foreign allowances held in the domestic system will retain their value (since they can be used for compliance purposes, their market value should be the same as that of domestic allowances). Thus, special protection for investors is not warranted. This solution will – temporarily – lead to the odd situation that a foreign allowance held in the domestic ETS will have a different value than a foreign allowance that is traded in the system of origin: as soon as the suspension from trade is announced, the market prices of the two previously linked systems are expected to diverge. One issue that needs to be resolved in this case is how to deal with account holders that have no compliance obligation themselves, such as trading companies. A practical implication is that future contracts would effectively become nullified, as the seller is effectively unable to deliver the allowances on the end date of the contract.
- In addition, several alternative variants of the above are conceivable:
  - **Foreign certificates remain eligible for compliance, and only international trading of foreign allowances is suspended**. Within the domestic system, trading of foreign allowances remains possible, thus resolving the problem of account holders that are not compliance entities.
  - **Foreign certificates are suspended from international trade, but remain eligible for compliance for a certain, fixed dawn period** (e.g. 2-3 years). The effects would be **comparable** to the default case above, with the difference that there is a pressure to sell off foreign allowances before the end of the dawn period (and hence, possibly, a drop in prices, depending on the overall amount of foreign allowances held, and the demand in the domestic system). A similar effect would be achieved if foreign certificates remain eligible for compliance only during the trading period during which the link is terminated (i.e. foreign certificates are excluded from banking).
  - **Foreign certificates remain eligible for compliance, and international trading is not suspended entirely, but only remains possible for trading allowances back into the system of origin.** For most practical purposes, this variant does not deviate much from the previous option. Whether companies actually make use of this possibility will depend on the development of prices after the de-linking is announced: if prices in the foreign scheme fall below those in the domestic scheme, domestic compliance entities will rather use foreign allowances for compliance then selling them. The opposite is true if the price in the foreign scheme rises above that in the domestic scheme. One advantage of this variant is that it allows account holders that are not compliance companies to sell off their stocks of foreign allowances – albeit possibly at a lower price.
- Another, juxtaposed option is that **foreign certificates remain tradeable between the systems, but are no longer eligible for compliance in the domestic ETS.** In this case, holders of foreign allowances would be forced to sell them off, since they have no use in the domestic system. The economic implications are a *priori* unclear: Since the link is revoked, prices of the foreign vs. domestic allowances would immediately diverge, reflecting the scarcity in each of the different systems, rather than the overall scarcity in the joint system. This change in prices could result in a net gain or a net loss for holders of foreign allowances, depending on the (perceived) scarcity in each of the two systems.

- A variant of the above is possible if the foreign system uses vintages, i.e. if allowances can be distinguished based on their year of issuance. In this case, **tradability and eligibility for compliance could be limited to past vintages of foreign allowances**. That is, past vintages of foreign allowances remain both tradeable and eligible to use for compliance, while current and future vintages are neither tradeable nor eligible for compliance. This may lead to some arbitrage effects (as past vintages of foreign allowances are sold off from one system into the other), and it will lead to diverging prices for the different vintages, but in principle it protects the rights and interests of account holders who have bought foreign allowances in good faith.

The following table gives an overview on the restrictions (in increasing intensity) on both the tradeability of foreign allowances and their eligibility for compliance purposes in the domestic system. The combination A-I is thus the normal case in linked systems (trade is possible, and foreign allowances can be used for compliance). F-IV is the most extreme case, where all trade of foreign allowances is suspended immediately, and foreign allowances are no longer eligible for compliance, i.e. effectively become worthless. In between, there are plenty of possible combinations, with different impacts on the owners of allowances.

Table 7: Options for the Restrictions on the Use of Foreign Allowances

Restrictions on the tradeability of foreign allowances	Restrictions on the eligibility of foreign allowances for domestic compliance obligations
A. No suspension of trading	I. Foreign allowances remain eligible for compliance
B. Suspension of imports from the foreign system (domestic trade and exports into the foreign system remain possible)	II. Only foreign allowances of past vintages remain eligible for compliance
C. Suspension of international trade only (domestic trade remains possible)	III. Foreign allowances remain eligible for compliance during a dawn period (or until the end of the trading period)
D. Suspension of all trade after a dawn period (or by the end of the trading period)	IV. Foreign allowances no longer eligible for compliance
E. Suspension of all trade for current and future vintages	
F. Suspension of all trade (domestic and international)	

6.4 Mechanisms for the Protection of Investors

Regardless of the nature of the basis chosen for the link and regardless of whether this basis establishes legally binding obligations between the contractual partners, there are legal obligations towards the participants in the respective partner's individual emissions trading scheme. If a link is terminated and the participants in the trading scheme reasonably confided in the continuity of the link, the termination can lead to claims for compensation for damages.

Disadvantages or damages affecting the participants in the trading scheme can result from two different constellations:

- Participants can suffer from damages that arise if they trusted in being able to use the acquired foreign certificates in their own emissions trading scheme to comply with their emission allowances.
- Another constellation in which damages can occur are situations in which participants acquired certificates to trade them in the foreign emissions trading scheme or managed to make their own certificates available for trade through their own emissions reduction efforts and could have sold these certificates in the foreign emissions trading system at a profit.

In these cases, the confidence in being able to use the acquired certificates from the foreign emissions trading system to comply with own obligations deserves greater protection. The certificates were purchased legally and are constitutionally protected by property rights. They lose their economic value if the possibility to use them to comply with own obligations no longer exists, and if they are not able to sell these allowances.

In this most extreme case, their owners would be forced to replace these – now worthless – certificates by purchasing additional allowances from their own emissions trading system. Accordingly, the owners suffer from an economic loss equaling the value of these certificates.

The situation is more complex in the cases listed above, where either the tradeability of foreign certificates or the option to use them for compliance is revoked, but not both. In this case, the extent of economic damage would depend on how prices in the two formerly linked systems evolve (see discussion above). In either case, and whatever the price relations between the two systems are, domestic holders of foreign allowances would be faced with the transaction costs of reorganizing their holdings of (foreign and domestic) certificates, and the price implications of a general loss in confidence that may affect each of the two previously linked systems.

Such economic damages can be limited or avoided if certificates that were acquired before and after the announcement of the termination are distinguished. An option is to make sure that foreign certificates are no longer purchased after the termination of the link or that certificates bought after the realization of the termination are no longer used for compliance purposes. However, owners of certificates bought before the announcement of the termination should still be able to use these certificates in the compliance period or throughout the entire trading period (see Haites 2008: 12). Regulating which allowances from the other scheme can be used for compliance after the termination notice is given is in fact one of the main transition issues (Haites/Wang, 2006: 12).

In comparison to this constellation, confidence in the continuing ability to sell own certificates in the foreign emissions trading scheme is less worthy of protection. In this case, what is at stake are the prospects of future earnings, yet the acquired allowances are not devaluated, since their owners can still sell them under the domestic emissions trading scheme. The only loss suffered as a result of the termination of the link is the foregone profit of being able to sell domestic allowances in the foreign emissions trading system at a higher price. Such prospects of profit are, however, not legally protected as property rights.

However, if these constellations are nonetheless deemed to be worthy of additional protection for political reasons, a feasible option is to permit the continued sale of domestic certificates in the foreign emissions trading system for a certain transitional period. With regard to such a transitional period, it is thus suggested in literature that “each scheme should accept allowances from linked schemes for compliance until the agreement ends or some other agreed date” (Haites/Wang, 2009: 11). Yet the effectiveness of this approach depends on whether the other emissions trading system actually continues to allow the sale of certificates originating in the other emissions trading scheme terminating the link. Obviously, the most likely reaction to the termination of the link by the linking partner is, presumably, to make sure that exactly this possibility no longer exists either. Neither scheme will accept allowances issued by the other scheme for compliance purposes after the link has been terminated (see Haites/Wang, 2009: 11).

7 Conclusions

Global Dynamics of Linking ETS

Plenty of research has been conducted on the modalities and the implications of linking different ETS – however in reality, until now there are only very few cases of actual existing links between ETS, which makes it difficult to come to general conclusions. In particular, all existing cases of links between ETS are examples (more or less) of the co-evolution of the later-to-be-linked ETS, where the option of an eventual link has always been present in the deliberations and design choices of decision makers – or, as in the case of the EU-Norway link, where schemes were explicitly set up in order to be linked to an existing system, and hence designed to be entirely compatible. In addition, all of the existing cases of linking negotiations happened in constellations where one scheme was significantly larger than the eventual partner(s), and would thus function as the centre of gravity in the linked system.

Also, the existing cases in which parties have opted for a common design and governance framework show that the level of coordination required for a link between ETS is more likely to emerge under conditions of geographic proximity and a history of economic and political cooperation (Tuerk et al., 2009; Ranson et al., 2015).

While proximity and cooperation are neither a guarantee for a successful link, nor a precondition, there are a number of factors that are beneficial to a link: First, politically and economically aligned jurisdictions are more likely to share views on the design of an ETS as well as the importance of climate change mitigation and the ambition of policy responses. Second, a history of regulatory cooperation enhances confidence in the administrative capacities of the other jurisdiction, and it also means that there will often be shared institutions and procedures (e.g. related to information exchange), as well as a legal basis for cooperation on which the linking agreement can build. And third, existing regulatory cooperation may also imply that there are already harmonized or compatible regulatory approaches in other fields related to ETS operation (e.g. energy market regulation or air pollution regulation), and there may even be already-established institutions that can be utilized to provide support and service functions for a linked ETS.

This pattern implies a path dependency towards regional clusters of co-evolving ETS (e.g. a Eurasian cluster with the EU ETS at its center, an East-Asian cluster with China at its center and one or two North-American clusters around California and RGGI). With the Australia-EU negotiations, there has only ever been one case where a link between ETS from geographically distant regions, with considerable divergence in ETS design and not much prior economic or political integration, was negotiated. Unfortunately, due to the faltering political support for carbon pricing in Australia, this option never materialized; yet the experience of negotiating the linking agreement at least demonstrated that even perceived obstacles to linking can successfully be addressed by mutual compromise, as occurred with certain features of the Australian Carbon Pricing Mechanism. Going forward, one of the most interesting questions is if (or when) a link between the clusters could emerge, and what dynamics would be at work if these differently designed, well-established systems of comparable size were to pursue a link. Given the likelihood of deeply entrenched and potentially harmonized system designs in each separate cluster, a link between clusters may involve the creation of a hub that facilitates trading between heterogeneous markets, for instance by instituting unit exchange rates based on agreed criteria.

Thus, while increased harmonization between systems would offer a number of clear benefits, it is not reflected in the current trend towards greater heterogeneity in carbon pricing instruments and differences in ETS design (Marcu, 2015). Each trading system is the outcome of a complex and highly contingent policy process with numerous stakeholders and affected interests, whose accommodation will usually take precedence over attempts to align design features with other jurisdictions or a common design template. Where political support for harmonization can be mustered nonetheless, harmonization will be easiest if it can occur at the time the trading system is first established. Subsequent adjustments – at least those affecting fundamental design elements – will be more difficult, both because of path dependencies in the design and implementation of any ETS, and the need to honor political compromises entered with domestic constituencies in the initial establishment process. Experience suggests that only smaller systems with a dominant interest in linkage are willing to cede proprietary design features in order to facilitate a link; it is doubtful that large established systems will have a similar inclination to implement far-reaching changes.

Legal Nature of a Linking Agreement and Implications for the Operation of the Linked ETS

There are two basic options for the legal nature of a linking agreement: a non-binding arrangement such as an MoU or a binding international treaty. In principle, the legal nature of a linking agreement would seem to be essential for the credibility of an agreed link, where an international treaty will generally signal greater willingness to engage in market integration as well as institutional cooperation. However, there may also be reason to believe that the legal nature is not as important in practice as it would seem in theory. In currently operational examples of linking, there was little choice in the matter anyway. The North American schemes do not have the option of entering into an international treaty, and hence had to resort to political agreements. As per mandate laid down in the EU ETS Directive, the EU generally does not consider MoUs a sufficiently robust and credible basis for linked ETS, and hence – so far – has only pursued links on the basis of international treaties. The market does not seem to bother, or even to speculate on de-linking: which basically leads to the observation that if the political commitment is strong enough, the legal nature is not decisive for the link to be perceived as permanent and credible. At the same time, if the political commitment is seen to be lacking (from one or from both sides), an international treaty may afford some more credibility than an MoU, as it enjoys more legitimacy and has greater legal and political weight. But, lacking political commitment, the treaty in and off itself will not preserve the credibility of the link – as with domestic law, international legal commitments have in the past failed to secure state compliance.

Institutional Arrangements for Coordinating Changes in the Linked ETS

Whichever the legal nature of a linking agreement – one of the requirements is that the linking agreement gives room to the linked ETS to allow them to change and evolve, while ensuring sufficient coordination so that the ETS remain compatible, and changes to the ETS design that affect both parties are reached in agreement. In other words, the challenge of providing governance mechanisms for linked systems pertains not only to the alignment of the design choices prior to the establishment of the link, but even more to the ongoing management of the schemes after the link has been established. A number of different coordination mechanisms are conceivable to this end – ranging from networked governance approaches (regular exchange of information, consultation etc.) to more formalized, possibly centralized modes of governance (co-decision arrangements, creation of joint institutions with a service function, or possibly even a mandate to take binding decisions on particular issues). Which of these coordination mechanisms is seen as most appropriate will depend on several factors: above all, it is a political choice – more formalized procedures generally involve a greater surrender of sovereignty (to the linked ETS, or to a joint institution). Second, the legal nature of the link may influence the choice – more formalized coordination procedures may be seen as more credible if based on an international treaty rather than an MoU, and some choices – notably any transfer of sovereignty to a centralized institution – will even require a formal legal basis in the form of a treaty. Yet there is no automatic connection between both, in the sense that particular coordination mechanisms would require a particular legal form.

However, the choice of a coordination mechanism is not a dichotomous one: at any given time, there will be different coordination needs between linked ETS, pertaining to different issues, in different phases and at different times. Thus, during the routine operation of both schemes, information exchange is likely to be sufficient. At times of change, the coordination need will be greater: for minor adaptations that become necessary without changes of the underlying legislation, information exchange combined with consultations will likely achieve sufficient coordination. For major changes of the system, such as regular, scheduled reviews of the scheme involving a change of the underlying legislation, information and consultation could be combined with a review of key changes (mutual peer review or review by a third party), or even co-decision arrangements for particular issues (e.g. cap-setting). The most demanding challenges for the governance of linked ETS are extraordinary and unforeseen changes to the ETS – or the conditions under which it operates – which may call for rapid and extensive adjustments to the link. In terms of coordination mechanisms that could be used to respond to such changes in a linked ETS, consultations are clearly a suitable option, most likely in the form of formal, high-level consultations. An external review could be helpful to bring in an objective, impartial perspective or even to function as arbiter – provided that the parties can agree on such an external reviewer. Peer review, while possible, is likely to be difficult in a situation of strongly opposed views and (possibly) eroding trust between partners.

Linking ETS as a Dynamic Process

Even in cases where both linking partners can build on close economic and political integration, negotiating the details of a linking agreement may still take years. For a link between jurisdictions that do not enjoy the benefit of starting from such a common basis, the process of linking ETS may take longer still. It is therefore illustrative to conceive of the process of integrating ETS as a dynamic one, which is not only about the actual link of two trading systems, but in equal measure about aligning climate policy efforts, building up trust and establishing routines for cooperation.

- At an early stage of integration, cooperation may occur through informal networks geared towards an exchange of information, promotion of uniform approaches and standards, stakeholder involvement, and outreach activities. Rather than adopt binding standards or recommendations, these networks would be largely limited to issuing recommendations and providing advice on the implementation and harmonization of trading schemes.
- As integration becomes more aligned with domestic political priorities, however, participating jurisdictions may be willing to consider more formal arrangements to promote further market integration, such as an umbrella agreement harmonizing certain features of the domestic trading schemes and specifying mandatory procedures. Such an umbrella agreement could outline minimum standards (e.g. related to monitoring, reporting and verification), or seek to harmonize technical details (e.g. standards for the registry software). An umbrella agreement may also be used to create an institution with limited powers, such as a treaty secretariat or clearinghouse facilitating trading and continued operation of the market links through coordination of meetings, collection and circulation of information, and general logistical functions such as registry maintenance.

- At a later stage of integration, participating States may even opt for the establishment of an international or supranational organization, with independent legal personality, a constitutive mandate, and defined governance structures. Aside from individually defined responsibilities, such an organization could also be afforded genuine powers to adopt and enforce rules for market participants and linked jurisdictions in pursuit of a more broadly conferred mandate.

Such a dynamic perspective does not only apply to the governance of the link, but is also conceivable for the type of link itself. Following an initial period of mutual observation and exchange, it would be conceivable to first establish a reciprocal unilateral link (either on the basis of an MoU, or even without an explicit joint legal basis). If there is uncertainty or anxiety about how the link will function in practice, and how it will affect the functioning of the linked schemes, such a reciprocal unilateral link may be combined with safeguards, such as quantitative limits on the number of allowances that can be transferred from one system to another, possibly through the use of a gateway or some other containment mechanism. This initial "pilot" link would then eventually be followed by a full bilateral link, or even become part of a multilateral link.

Termination of the Link

As the Australian example reminds us, ETS are political instruments, and as such depend on continued political support. Thus, the option of linking ETS also implies the possibility that a link may need to be discontinued if the political support is withdrawn, or trust in the linked ETS erodes for other reasons.

The legal procedure for the termination of the linking agreement depends on the legal nature of the agreement. In general, withdrawing from a link that is based on a non-binding MoU will be easier and quicker than for an international treaty. For the withdrawal process, the agreement will typically lay out steps and procedures to be followed in case of differences between the partners, or a material breach of the agreement (such as notification requirements and periods, obligation to seek dispute resolution, conditions for a temporary suspension of the link, and eventually its termination). Where such procedures or requirements are not described in the agreement, general provisions of the Vienna Convention on the Law of Treaties would apply.

Of particular interest is the effect of the termination on private parties: one precondition for a successful link is that market players consider the linking commitment as credible, and invest accordingly. That means that, in case the link is terminated, the regulator needs to assess carefully which account holders ought to be protected or compensated, as they have bought foreign allowances in good faith that they would be able to sell or use them for compliance. Therefore, a key choice in the process of terminating the link pertains to the status of foreign allowances. One of the essential features of linked ETS is that foreign allowances are fungible, and that they can be used for compliance purposes in the domestic ETS. Thus, in the case that the link is terminated, the question is whether domestic entities a) should no longer be able to use foreign certificates for compliance, b) should no longer be able to import foreign certificates, or c) should no longer be able to trade foreign certificates at all (and different combinations of the above, possibly with different transition periods). The most drastic option, whereby foreign certificates are neither tradable nor can be used for compliance, effectively nullifies their value and amounts to expropriation; this approach is therefore neither very likely, nor does it seem proportionate. By contrast, the least intrusive approach is to maintain those foreign certificates that are already in the domestic registry as domestically tradable and eligible for compliance, and merely to ban the import of further foreign certificates. In this case, the economic value of foreign certificates should remain practically unchanged compared to that of domestic allowances. Finally, options that only ban the use of foreign certificates for domestic compliance obligations, but otherwise impose no limits on tradability imply that the market price of those certificates will follow the price in the foreign scheme rather than the domestic one. This includes both the options of a loss of or an increase in value. Under any scenario, careful thought needs to be given to different positions of market participants and their interests – for instance, which share of the foreign certificates is held by compliance entities vs. financial institutions without compliance obligations, and which of their interests merit protection, or could be considered as general market risks.

Outlook

Recent developments in international climate cooperation suggest a trend towards greater heterogeneity of domestic approaches and a diminishing role for traditional multilateralism. For the foreseeable future, therefore, linking of ETS may be limited to geographically adjacent and socioeconomically attuned jurisdictions. Over time, however, the appeal of broader market integration is likely to increase as domestic abatement options are successively exhausted and the cost of meeting pledged emission reductions surges. At that point, jurisdictions may wish to explore new forms of cooperation, such as multilateral linking of ETS with gradual harmonization of system design, or institution of a centralized hub to accommodate differences between systems. As this study has shown, however, deepening integration between a growing number of participants will also inevitably intensify the attendant governance complexities, and require a careful balance of compatibility and flexibility to ensure the necessary level of regulatory convergence while also keeping entry barriers low and accommodating remaining design differences and divergent ambition levels.

8 References

Ahlberg, Malin, Hanna Arnold, and Frank Gagelmann (2013): Linking Different Emissions Trading Systems – Current State and Future Perspectives. Berlin: German Emissions Trading Authority (DEHSt) at the Federal Environment Agency, December 2013.

Air Resources Board (2013): Linkage Readiness Report. 1 November 2013. Available online at: http://www.arb.ca.gov/cc/capandtrade/linkage/arb_linkage_readiness_report.pdf.

Air Resources Board (2014a): Participation in the Western Climate Initiative, California Environmental Protection Agency. Available online at: http://www.arb.ca.gov/cc/capandtrade/wci/agreement.htm.

Air Resources Board (2014b): California Cap-and-Trade Program and Québec Cap-and-Trade System November 2014 Joint Auction #1 Summary Results Report. Available online at: http://www.arb.ca.gov/cc/capandtrade/auction/nov-2014/summary_results_report.pdf.

Allens (2012): Focus: EU Linkage and other Carbon Pricing Scheme Amendments. Amendments to facilitate linking with EU Emissions trading Scheme. Available online at: http://www.allens.com.au/pubs/cc/focc27nov12.htm#Amend.

Aust, Anthony (2007): Modern Treaty Law and Practice. 2nd ed. Cambridge University Press. Cambridge.

Austin, Jennifer (2015): Quantifying Ambition and Credibility to Facilitate Linkage of Markets. Presentation held on 7 May 2015 at Workshop "Comparison and Linkage of Mitigation Efforts in a New Paris Regime". Cambridge, Mass.

Australian Government and European Commission (2012): Linking emissions trading systems, Letter – Minister Combet to Commissioner Hedegaard, 27 August 2012. Available online at: http://www.climatechange.gov.au/australia-and-european-commission-linking-emissions-trading-systems.

BG Group, BP, ENI et al. (2015): Letter to Her Excellency Ms. Christiana Figueres and His Excellency Mr. Laurent Fabius. Available online at: http://www.statoil.com/en/NewsAndMedia/News/2015/Downloads/Paying%20for%20Carbon%20letter.pdf

Bifera, Lucas (2013): Regional Greenhouse Gas Initiative (RGGI): Center for Climate and Energy Solutions.

Bodanksy, Daniel, Seth Hoedl, Gilbert Metcalf, and Robert N. Stavins (2014): Facilitating Linkage of Heterogeneous Regional, National, and Sub-National Climate Policies Through a Future International Agreement. Harvard Kennedy School, Harvard Project on Climate Agreements, September 10, 2014.

British Columbia (2008): Intergovernmental Relations on Climate Action, International Carbon Action Partnership. Available online at: http://www2.gov.bc.ca/gov/topic.page?id=92E39A38CCF34BE9814996809E2868A3#wci.

Bundesamt für Umwelt BAFU (2009): Bundesrat erteilt Verhandlungsmandat für Verknüpfung mit EU-Emissionshandel. Available online at: http://www.bafu.admin.ch/emissionshandel/05576/12688/index.html?lang=de&msg-id=30717.

Bundesamt für Umwelt BAFU (2011): CO_2- Emissionshandelssysteme: Verhandlungen Schweiz – EU fortgesetzt. Available online at: http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=de&msg-id=41297.

Bundesamt für Umwelt BAFU (2013): Fünfte Verhandlungsrunde Schweiz–EU zur Verknüpfung der Emissionshandelssysteme. Available online at: http://www.bafu.admin.ch/emissionshandel/05576/12688/index.html?lang=de&msg-id=51350.

Bundesamt für Umwelt BAFU (2013): Teilnehmer am Emissionshandelssystem. Available online at: http://www.bafu.admin.ch/emissionshandel/05545/12432/index.html?lang=de.

Burtraw, Dallas, Karen Palmer, Clayton Munnings, Paige Weber, and Matt Woerman (2013): Linking by Degrees: Incremental Alignment of Cap-and-Trade Markets. RFF Discussion Papers. Washington D.C.: Resources for the Future, April 2013.

C2ES (2014): Regional Greenhouse Gas Initiative (RGGI): Center for Climate and Energy Solutions. Available online at: http://www.c2es.org/us-states-regions/regional-climate-initiatives/rggi.

Carbon Pricing Leadership Coalition (2014): Statement - Putting a Price on Carbon. Available online at: http://www.worldbank.org/content/dam/Worldbank/document/Carbon-Pricing-Statement-060314.pdf.

Chan, Michelle (2009): Subprime Carbon: Rethinking the World's Largest New Derivatives Market. Friends of the Earth. Washington, D.C.

Charnovitz, Steve (1994): The NAFTA Environmental Side Agreement: Implications for Environmental Cooperation, Trade Policy, and American Treatymaking, 8 Temp. Int'l & Comp. L.J.257 (1994).

Comendant, Corina, Sam Fankhauser, and Luca Taschini (2014): Globally Networked Carbon Markets: Assessment of Mechanisms (Presentation). World Bank et al. Paris.

Commonwealth of Australia (Department of Climate Change and Energy Efficiency) and the European Commission (Directorate General for Climate Action) (2013): Registry Options to Facilitate Linking of Emissions Trading Systems. Consultation Paper. Canberra and Brussels.

Commonwealth of Australia (Department of Climate Change and Energy Efficiency) and the European Commission (Directorate General for Climate Action) (2012): Australia and European Commission Agree on Pathway Towards Fully Linking Emissions Trading Systems. Available online at: http://europa.eu/rapid/press-release_IP-12-916_en.htm?locale=en.

Council of the European Union (2010): EU to link its greenhouse gas emissions trading system with Switzerland. 20 December 2010. Available online at: http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/envir/118632.pdf.

De Perthuis, Christian and Raphaël Trotignon (2013): Governance of CO_2 markets: Lessons from the EU ETS, Les Cahiers de la Chaire Economie du Climat, Working Paper Series, No. 2013-07

De Souza, Mike (2014): Trailblazing California-Québec Climate Plan Faces Fossil Industry Pushback, June 2014. Available online at: http://insideclimatenews.org/news/20140612/trailblazing-california-quebec-climate-plan-faces-fossil-industry-pushback.

De Wit, Elisa and Hannah Gould (2013): Carbon Pricing Mechanism – Moving to an ETS one year earlier, Available online at: http://www.nortonrosefulbright.com/knowledge/publications/104542/carbon-pricing-mechanism-moving-to-an-ets-one-year-earlier.

Donald, Wylie (2012): Soldiering on: the Western Climate Initiative and RGGI in 2012 and Beyond, Available online at: http://www.climatelawyers.com/post/2012/01/08/Soldiering-On-The-Western-Climate-Initiative-and-RGGI-in-2012-and-Beyond.aspx.

Ellis, Jane, and Dennis Tirpak (2006): Linking GHG Emission Trading Schemes and Markets. OECD. Paris.

Environment Northeast (ENE) (2010): RGGI At One Year: An Evaluation of the Design and Implementation of the Regional Greenhouse Gas Initiative, 2010.

Environmental Defense Fund (EDF) and International Emissions Trading Association (IETA) (2014): Australia. The World's Carbon Markets: A Case Study Guide to Emissions Trading, Last Updated: March 2014.

Environmental Defense Fund (EDF) and International Emissions Trading Association (IETA) (2013a): Norway. The World's Carbon Markets: A Case Study Guide to Emissions Trading, Last Updated: May, 2013.

Environmental Defense Fund (EDF) and International Emissions Trading Association (IETA) (2013b): Regional Greenhouse Gas Initiative. The World's Carbon Markets: A Case Study Guide to Emissions Trading, Last Updated: May, 2013.

Environmental Defense Fund (EDF) and International Emissions Trading Association (IETA) (2013c): Switzerland. The World's Carbon Markets: A Case Study Guide to Emissions Trading, Last Updated: May, 2013.

Environmental Finance (2014): Building Bridges, Available online at: http://www.environmental-finance.com/content/analysis/building-bridges.html?pf=print.

Flachsland, Christian, Edenhofer, Ottmar, Jakob, Michael and Jan Steckel (2008): Working Paper Linking-1, Developing the International Carbon Market. Linking Options for the EU ETS, Potsdam Institute for Climate Impact Research, May 2008.

Füssler, Jürg, and Martin Herren (2015): Design Options for an International Carbon Asset Reserve. World Bank Group. Washington, D.C.

Gerstetter, Christiane et al. (2014): Regulatory cooperation under TTIP – a risk for democracy and national regulation?, September 2014, Ecologic Institute.

Green, Jessica F., Thomas Sterner and Gernot Wagner (2014): A Balance of Bottom-up and Top-down in Linking Climate Policies. Nature Climate Change 4(12): 1064-1067.

Grimmett, Jeanne J. (2011): Dispute Settlement in the U.S.-South Korea Free Trade Agreement (KORUS FTA), 20122.

Haites, Eric and Xueman Wang (2009): Ensuring the Environmental Effectiveness of Linked Emissions Trading Schemes Over Time. Mitigation and Adaptation Strategies to Global Change 14. 465-76.

Haites, Eric, and Fiona Mullins (2001): Linking Domestic and Industry Greenhouse Gas Emission Trading Systems. Electric Power Research Institute (EPRI) et al. Palo Alto, Cal.

Haites, Erik (2003): Harmonisation between National and International Tradeable Permit Schemes. OECD. Paris.

Haites, Erik (2008): Getting Linked, Breaking Up, International Linking of Emissions Trading, Australian National University.

Haites, Erik (2014): Lessons Learned from Linking Emissions Trading Systems: General Principles and Applications. Partnership for Market Readiness. Washington, D.C.

Haug, Constanze, Michel Frerk, and Marissa Santikarn (2015): Towards a Global Price on Carbon: Pathways for Linking Carbon Pricing Instruments. Background Report to Inform the G7 Process. Adelphi. Berlin.

Hawkins, Sonja and Ingrid Jegou (2014): Linking Emissions Trading Schemes: Considerations and Recommendations for a Joint EU-Korean Carbon Market. Genf: International Center for Trade and Sustainable Development (ICTSD).

Hibbard, Paul J., Susan F. Tierney, Andrea M. Okie, Pavel G. Darling (2011): The Economic Impacts of the Regional Greenhouse Gas Initiative on Ten Northeast and Mid-Atlantic States. Review of the Use of RGGI Auction Proceeds from the First Three-Year Compliance Period, Analysis Group, 2011.

House of Commons, Energy and Climate Change Committee (2015): Linking Emissions Trading Systems, Fifth Report of Session 2014-15. Available online at: http://www.publications.parliament.uk/pa/cm201415/cmselect/cmenergy/739/739.pdf.

Huber, Bruce (2013): How Did RGGI Do It? Political Economy and Emissions Auctions, 2013.

Hufbauer, Gary Clyde (2005): NAFTA Revisited: Achievements and Challenges, Peterson Institute.

Hughes, Wendy (2014): Globally Networked Carbon Markets: Common Frame of Reference and Approach for Climate Change Mitigation Value. Presentation held on 12 February 2014 at the 2nd Working Group Meeting on Globally Networked Carbon Markets. Paris, France.

International Carbon Action Partnership (ICAP) (2014): MRV & Enforcement, Available online at https://icapcarbonaction.com/ets-topics/mvr-and-enforcement.

International Carbon Action Partnership (ICAP) (2014a): EU Emissions Trading System (EU ETS), Last Update 27

October 2014.

International Carbon Action Partnership (ICAP) (2014b): USA – California Cap-and-Trade Program, Last Update 27 October 2014.

International Carbon Action Partnership (ICAP) (2014c): USA – Regional Greenhouse Gas Initiative (RGGI), Last Update 27 October 2014.

International Carbon Action Partnership (ICAP) (2014d): Emissions Trading Worldwide, Status Report 2014. Available online at: https://icapcarbonaction.com/component/attach/?task=download&id=152.

International Emissions Trading Association (IETA) (2013): The World's Carbon Markets: A Case Study Guide to Emissions Trading – Switzerland. Available online at: http://www.ieta.org/assets/Reports/EmissionsTradingAroundTheWorld/edf_ieta_switzerland_case_study_may_2013.pdf.

International Emissions Trading Association (IETA) (2014a): Written Evidence submitted to the Select Committee on Energy and Climate Change's Inquiry on Linking Emissions Trading Systems. Available online at http://data.parliament.uk/writtenevidence/committeeevidence.svc/evidencedocument/energy-and-climate-change-committee/linking-emissions-trading-systems/written/9258.html.

International Emissions Trading Association (IETA) (2014b): The World's Carbon Markets: A Case Study Guide to Emissions Trading – Australia. Available online at:

International Monetary Fund (2015): Obligations and Benefits of IMF Membership. Available online at: https://www.imf.org/external/np/exr/center/mm/eng/mm_bnfts.htm.

Ipsen, Knut (ed.) (2004): Völkerrecht, 5. edition, 2004.

Jaffe, Judson, and Robert N. Stavins. (2007): Linking Tradable Permit Systems for Greenhouse Gas Emissions: Opportunities, Implications, and Challenges. International Emissions Trading Association. Geneva.

Jaffe, Judson, Matthew Ranson and Robert N. Stavins (2007): Linking Tradable Permit Systems: A Key Element of Emerging International Climate Policy Architecture. Ecology Law Quarterly, 36. 789-808.

Jónsdóttir, Jóhanna (2008): Can Iceland Influence EU Decision Making?, Paper presented at the ECPR Standing Group on the European Union Fourth Pan-European Conference on EU Politics, 25 to 27 September 2008, Riga, Latvia.

Jotzo, Frank and Regina Betz (2009): Australia's emissions trading scheme: opportunities and obstacles for linking, Climate Policy, 2009, 402-414.

Kartha, Sivan (2014): Toward a Framework for an "Ambition Index" and Online Calculator. Presentation held on 12 February 2014 at the 2nd Working Group Meeting on Globally Networked Carbon Markets. Paris, France.

Keohane, Nathaniel, C. Annette Petsonk and Alex Hanafi (2015): Toward a Club of Carbon Markets. Forthcoming in Climatic Change.

Kirton, John (2004): NAFTA Dispute Settlement Mechanisms: An Overview. Paper prepared for an Experts Workshop on "NAFTA and its Implications for ASEAN's Free Trade Area," Asian Institute, Munk Centre for International Studies, Toronto, May 27, 2004.

Lazarowicz, Mark (2009): Global Carbon Trading: A Framework for Reducing Emissions. Office of Climate Change. London, U.K.

Lazarus, Michael, et al. (2015): Options for Restricted Linking. Presentation held on 7 May 2015 at Workshop "Comparison and Linkage of Mitigation Efforts in a New Paris Regime." Cambridge, Mass.

Lenz, Christine, Barbara Volmert, Anja Hentschel und Alexander Roßnagel (2014): Die Verknüpfung von Emissionshandelssytemen - Sozial Gerecht und Ökologisch Effektiv. Vol. 4. Interdisciplinary Research on Climate Change Mitigation and Adaptation. Kassel: Kassel University Press.

Mace, M.J., and Jason Anderson (2009): Legal and Design Issues Arising in Linking the EU ETS with Existing and

Emerging Emissions Trading Schemes. Journal for European Environmental & Planning Law 6, no. 2 (2009): 197–232.

Mace, Mary J., et al. (2008): Analysis of Legal and Organisational Issues Arising in Linking the EU Emissions Trading Scheme to other Existing and Emerging Emissions Trading Schemes. European Commission: Brussels.

Macinante, Justin (2015): An NCM 'Straw Man'. Presentation held on 7 May 2015. London, U.K.

Malkawi, Bashar Hikmet (2006): Jordan and the World Trading System: A Case Study for Arab Countries, 2006.

Marcu, Andrei (2015): Enabling Comparability of Mitigation Efforts for a Networked Carbon Market. Presentation held on 25 June 2015. Washington, D.C.

McFayden, Jacqueline (2014): NAFTA Supplemental Agreements: Four Year Review, Peterson Institute for International Economics, Working Papers. Available online at: http://www.iie.com/publications/wp/print.cfm?ResearchId=145&doc=pub.

McLean B. and J. Barton (2008): U.S.-Canada cooperation: the U.S.-Canada air quality agreement, 2008.

Mehling, Michael (2007): Bridging the Transatlantic Divide: Legal Aspects of a Link Between Regional Carbon Markets in Europe and the United States, Sustainable Development Law & Policy, Volume 7, Issue 2 Winter 2007: Climate Law Reporter 2007, Article 18, 46-51, 83-84.

Mehling, Michael, and Eric Haites (2009): Mechanisms for Linking Emissions Trading Schemes, Climate Policy 9(2). 169–84.

Mehling, Michael, Wolfgang Sterk, Andreas Tuerk, and Christian Flachsland (2011): Linking Carbon Markets: Concepts, Case Studies and Pathways. Climate Policy 9, no. 4 (June 2011): 341–57.

Merkel, Angela, and François Hollande (2015): Petersberg Dialogue Call for Climate Action - Joint Statement from Angela Merkel and François Hollande, May 19, 2015. Available online at: http://www.diplomatie.gouv.fr/en/french-foreign-policy/climate-7436/events-7880/article/petersberg-dialogue-call-for.

Metcalf, Gilbert E., and David Weisbach (2012): Linking Policies When Tastes Differ: Global Climate Policy in a Heterogeneous World. Review of Environmental Economics and Policy 6(1).): 110-129.

Montini, Massimiliano (2014): Linking Emission Trading Schemes around the world: critical analysis and perspectives, 2014.

Mulroney, Brian M. (2012): The Acid Rain Treaty at 21, Available online at: http://www.nortonrosefulbright.com/knowledge/publications/64617/the-acid-rain-treaty-at-21.

NAFTA Secretariat (2004): Overview of the Dispute Settlement provisions of the North American Free Trade Agreement (NAFTA), Available online at: http://www.tbs-sct.gc.ca/dpr-rmr/2007-2008/inst/cst/cst01-eng.asp.

Nordhaus, William (2015): Climate Clubs: Overcoming Free-riding in International Climate Policy. American Economic Review 105(4).): 1339-1370.

Parliament of Australia (2012): Australia's evolving relationship with the European Union: an update, Available online at: http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BN/2012-2013/EUAustUpdate.

Philipps. Freedom-Kai (2014): Climate Change, Sustainable Development and NAFTA: Regional policy harmonization as a sound basis for sustainable development, Available online at: http://www.cec.org/Page.asp?PageID=1209&ContentID=25466&AA_SiteLanguageID=1.

Pizer, William A., and Andrew J. Yates (2013): Breaking Up May Not Be Hard to Do: Terminating Links between Emission Trading Programs. Regulatory Policy Program Working Paper RPP-2013-12. Cambridge, MA: Mossavar-Rahmani Center for Business and Government, Harvard Kennedy School, Harvard University.

Pizer, William A., and Andrew J. Yates (2014): Terminating Links between Emission Trading Programs, Duke

Environmental and Energy Economics Working Paper Series, Working Paper EE 14-09, August 2014.

PLATTS (2011): Six US states leave the Western Climate Initiative, Available online at: http://www.platts.com/latest-news/electric-power/washington/six-us-states-leave-the-western-climate-initiative-6695863.

Pohlmann, Markus (2009): The European Union Emissions Trading Scheme, in: Freestone, David and Charlotte Streck (eds.) (2009): Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and beyond, Oxford.

Powell, Lane and Michael A. Nesteroff (2011): The Western Climate Initiative is dead, long live the WCI, Available online at: http://www.lexology.com/library/detail.aspx?g=16aa30c5-63ab-406c-a3f7-100b3eaae557.

Prag, Andrew, Gregory Briner (OECD), and Christina Hood (2012): Making Markets: Unpacking Design and governance of Carbon Market Mechanisms, Organisation for Economic Co-Operation and Development (OECD) and International Energy Agency (IEA), November 2012

Purdon, Mark, David Houle, Erick Lachapelle (2014): The Political Economy of California and Québec's Cap-and-Trade Systems, University of Ottawa, 2014.

Québec (2014): The Québec Cap-and-Trade System and the WCI Regional Carbon Market: A Historical Overview. Available online at: http://www.mddelcc.gouv.qc.ca/changements/carbone/documents-spede/historical-overview.pdf.

Ranson, Matthew and Robert N. Stavins (2013): Linkage of Greenhouse Gas Emissions Trading Systems, Learning from Experience, November 2013.

Regional Greenhouse Gas Initiative (RGGI) (2005): Memorandum of Understanding, 2005.

Regional Greenhouse Gas Initiative (RGGI) (2006): Amendment to Memorandum of Understanding, 2006.

Regional Greenhouse Gas Initiative (RGGI) (2007): Second Amendment to Memorandum of Understanding, 2007.

Regional Greenhouse Gas Initiative (RGGI) (2012): RGGI Program Review: Summary of Recommendations to Accompany Model Rule Amendments.

Regional Greenhouse Gas Initiative (RGGI) (2013): Model Rule, Available online at: https://www.rggi.org/design/history/model_rule.

Regional Greenhouse Gas Initiative (RGGI) (2013): Summary of RGGI Model Rule Changes, Regional Greenhouse Gas Initiative – an Initiative of the Northeast and Mid-Atlantic States of the U.S., 2013.

Regional Greenhouse Gas Initiative (RGGI) (2014): State Statutes & Regulations, Available online at: https://www.rggi.org/design/regulations.

Regional Greenhouse Gas Initiative, Inc. (RGGI Inc.) (2009): Status Update: RGGI Offset Application & Submittal Materials and Verifier Accreditation Process, 2009.

Robinson, Jonathan et al. (2007): Climate Change Law. Emissions Trading in the EU and the UK, 2007.

Rodriguez, Jordan and Matthew Dobbins (2014): State Court Rejects New Jersey's Withdrawal from RGGI, Climate Change Blog, Available online at: http://climatechange.velaw.com/StateCourtRejectsNewJerseysWithdrawalfromRGGI.aspx.

Roßnagel, Alexander (2008): Evaluating Links between Emissions Trading Schemes: An Analytical Framework. Carbon and Climate Law Review 2(4). 394-405.

Schüle, Ralf and Wolfgang Sterk (2008): Options and Implications of Linking the EU ETS with other Emissions Trading Systems, Note, IP/A/CLIM/NT/2007-18 PE 401.011, Wuppertal Institute, 2008.

Shabecoff, Philip (1988): Canada sees acid-rain talks, New York Times, Available online at http://www.nytimes.com/1988/04/29/world/canada-sees-acid-rain-talks.html.

Stephan, Benjamin (2009): A Comparative Analysis of the Regional Greenhouse Gas Initiative and the Western Climate Initiative, Universität Hamburg, Klima Campus, Global Transformations Towards a Low Carbon Society, working Paper Series, No. 1, September 2009.

Sterk, Wolfgang et al. (2006): Ready to Link Up? Implications of Design Differences for Linking Emissions Trading Schemes. Wuppertal Institute for Climate, Environment and Energy. Wuppertal.

Sterk, Wolfgang, Michael Mehling and Andreas Tuerk (2009): Prospects of Linking EU and US Emissions Trading Schemes: Comparing the Western Climate Initiative, the Waxman-Markey and the Lieberman-Warner Proposals, Climate Strategies, April 2009.

Stewart, Richard B., and Philippe Sands (2001): The Legal and Institutional Framework for a Plurilateral Greenhouse Gas Emissions Trading System. In UNCTAD (ed.): Greenhouse Gas Market Perspectives: Trade and Investment Implications of the Climate Change Regime. UNCTAD. Geneva. 5-34.

The Transportation & Climate Initiative of the Northeast and Mid-Atlantic States (TCI) (2014): Overview of the Regional Greenhouse Gas Initiative.

Tuerk, Andreas, Michael Mehling, Christian Flachsland, and Wolfgang Sterk (2009): Linking Carbon Markets: Concepts, Case Studies and Pathways. Climate Policy 9, no. 4 (January 2009): 341–57. doi:10.3763/cpol.2009.0621.

U.S. Department of State (2011): United States and Canada Mark 20th Anniversary of Air Quality Agreement, 2011, Available online at: http://www.state.gov/r/pa/prs/ps/2011/03/158316.htm.

Victor, David (2015): The Case for Climate Clubs. ICTSD. Geneva.

Wartmann, S., S. Klaus, M. Scharte, J. Harnisch, S. Heilmann, and R. Bertenrath (2008): Weiterentwicklung des Emissionshandels – national und auf EU-Ebene. Dessau: Umweltbundesamt, March 2008. http://www.umwelt-daten.de/publikationen/fpdf-l/3444.pdf.

Western Climate Initiative (2008): Design Recommendations for the WCI Regional Cap-and-Trade Program.

Western Climate Initiative (2010): Design for the WCI Regional Program, 2010, Available online at: http://www.westernclimateinitiative.org/the-wci-cap-and-trade-program/program-design.

Western Climate Initiative (2010a): Design Summary, 2010.

Western Climate Initiative, Inc. (2011): Certificate of Incorporation of Western Climate Initiative, Inc., 28 October 2011, available online at: http://www.wci-inc.org/docs/Certificate_of_Incorporation.pdf.

Western Climate Initiative, Inc. (2011b): Western Climate Initiative jurisdictions establish non-profit corporation to support greenhouse gas emissions trading programs, Available online at: http://www.wci-inc.org/news-archive.php.

Western Climate Initiative, Inc. (2013): By-Laws of Western Climate Initiative, Inc. (A Delaware Non-Profit Corporation), Revised 8 May 2013, available online at: http://www.wci-inc.org/docs/By-Laws_of_the_WCI-Inc_Final_rev05082013_Signed.pdf.

Wettestad, Jørgen, and Torbjørg Jevnaker (2014): The EU's Quest for Linked Carbon Markets: Turbulence and Headwind. In Todd L. Cherry, Jon Hovi and David M. McEvoy (eds.): Toward a New Climate Agreement: Conflict, Resolution and Governance. London, Routledge. 266-279.

Widge, Vikram (2015): Networking Climate Actions for Stronger, International Carbon Markets. 28 January 2015. Available online at: http://blogs.worldbank.org/climatechange/networking-climate-actions-stronger-international-carbon-markets.

World Bank (2013): Globally-Networked Carbon Markets. 1st Working Group Meeting, 9-10 September 2013. Paris, France. Available online at: http://www.worldbank.org/content/dam/Worldbank/document/SDN/networked-carbon-markets-WG1.pdf.

World Bank (2013): Task Force to Catalyze Climate Action: Globally Networked Carbon Markets. International Bank for Reconstruction and Development. Washington, D.C.

World Bank (2014a): Globally-Networked Carbon Markets. 2nd Working Group Meeting, 12-13 February 2014. Paris, France. Available online at: http://www.worldbank.org/content/dam/Worldbank/document/Climate/networked-carbon-markets-WG2.pdf.

World Bank (2014b): Networked Carbon Markets. November 2014. Available online at: http://www.worldbank.org/content/dam/Worldbank/document/Climate/overview-networked-carbon-markets-1114.docx.

World Trade Organization (2015): How to Become a Member of the WTO. Available online at: https://www.wto.org/english/thewto_e/acc_e/acces_e.htm.

Zetterberg, Lars (2012): Linking the Emissions Trading Systems in EU and California, Report, A product from the Mistra Indigo Program, 2012.

9 Annex: Detailed Discussion of Relevant International Agreements

9.1 Regional Greenhouse Gas Initiative (RGGI)

The Regional Greenhouse Gas Initiative (RGGI) was the first mandatory greenhouse gas ETS to emerge in the U.S. (ICAP 2014c), covering CO_2 emissions from the power sector in participating jurisdictions. It is based on a Memorandum of Understanding (MoU) that is supplemented by a "Model Rule". Nine states in the Northeast and Mid-Atlantic United States[49] are currently participating in the initiative, which began in 2009 with the first compliance period (Zetterberg 2012; EDF/IETA 2013b). To date, the experiences made under RGGI have been largely positive.[50]

9.1.1 RGGI Memorandum of Understanding (2005)

Conceptually, the ETS created under RGGI can be seen as a case of nine state-level ETS established in the participating states and subsequently linked to each other: unlike other ETS, such as the EU ETS, the RGGI ETS is not based on one common piece of legislation that is binding on all participating entities. Rather, participation is voluntary, but states wishing to participate have to adopt their own state legislation, largely based on a "Model Rule" agreed between the original participants. Coordination between states is based on a Memorandum of Understanding (MoU), which is a formal, but legally non-binding expression of cooperation between these subnational jurisdictions.[51]

Originally signed on 20 December 2005 by the governors of seven states[52] and subsequently amended to reflect the changing membership of RGGI, this MoU forms the basis of state cooperation under RGGI (ENE 2010). It contains a number of general provisions for the routine operation of RGGI, including provisions on monitoring and review. In addition, it contains provisions for the establishment of supporting institutions with a number of relevant functions. Finally, the MoU also addresses the amendment, expansion of, withdrawal from or mutual termination of the linking arrangement. These governance elements are explained in further detail in the following sections.

Routine Operation: Ongoing Monitoring and Review of Compliance

The rules providing for monitoring and review of RGGI compliance are stipulated in Section 6 of the RGGI MoU. A major focus of continuous performance monitoring is the potential of emissions leakage from increased electricity imports (Sec. 6.A RGGI MoU). With a view to securing the environmental integrity of RGGI, the MoU therefore stipulates that parties shall "implement appropriate measures to mitigate [...] emissions" if they find that "the Program has led to a significant increase in emissions from electric generating units outside the Signatory States" (Sec. 6.A.5 RGGI MoU). Parties also "agree to pursue technically sound measures to prevent leakage from undermining the integrity of the Program" (Sec. 6.A.6 RGGI MoU). Additional monitoring procedures relate to potential impacts of RGGI on electric grid reliability (6.B RGGI MoU) and an overall program review, which was mandated by 2012 and has resulted in significantly tightened emissions targets for participating states.[53]

Institutional Arrangements: Non-profit corporation, multi-state working group, and independent market monitor

In Section 4 of the MoU, the signatory states agreed to create and maintain a regional organization to administer various aspects of ETS operation. Exercising this mandate resulted in the establishment of a non-profit corporation, "RGGI, Inc." (ICAP 2014c).

49 These are (in alphabetical order): Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island and Vermont. Pennsylvania, the District of Columbia and several Canadian provinces (Ontario, Quebec, and New Brunswick) are observers, and New Jersey withdrew from RGGI soon after the 2010 mid-term elections.

50 Reports on the success and benefits of RGGI highlight the economic value added, the reduced demand for fossil fuels, and the creation of 16,000 jobs in the region (Donald 2012; Hibbard et al. 2011). RGGI is, however, also subject to pressure from industry lobbyists (De Souza 2014).

51 Under the federal constitution, federate states have no formal diplomatic powers to conclude binding treaties with each other or with foreign jurisdictions, see U.S. Constitution, Art. I, § 10.

52 These states are (in alphabetical order): Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, and Vermont.

53 The 2012 review was called for in the initial RGGI Memorandum of Understanding. The MoU specified that the program review should be a comprehensive evaluation including program success, program impacts, additional emissions reductions, imports and emissions leakage, and offsets (Article 6 (D) of the MoU). This review was conducted jointly by the RGGI Member States. In support of the review, RGGI, Inc. facilitated events and webinars for stakeholder involvement; in addition several pieces of research were contracted to private consultants (e.g. modeling of economic impacts).

It is funded through contributions by all RGGI states, taking into account their annual CO_2 emissions budget (Sec. 4.B RGGI MoU), and is governed by an Executive Board comprised of two representatives from each signatory state (Sec. 4 RGGI MoU).

RGGI Inc. is primarily charged with technical support and facilitation. It does not have any "regulatory or enforcement authority with respect to the Program", as "such authority is reserved to each Signatory State for the implementation of its rule" (Sec. 4.A.5 RGGI MoU). Under the MoU, RGGI, Inc. is mandated with:

- acting as the "forum for collective deliberation and action among the Signatory States in implementing the Program";
- receiving and storing "reported emissions data from sources and track allowance accounts for the Program", for which RGGI Inc. has set up a publicly accessible CO_2 Allowance Tracking System (RGGI COATS) (ICAP 2014c: 3);
- providing "technical support to the States for the development of new offset standards to be added to state rules";
- providing "technical assistance to the States in reviewing and assessing applications for offsets projects" (Sec. 4.A.1-4 RGGI MoU).

Since its establishment, RGGI, Inc. has been charged with additional functions not explicitly specified in the MoU, such as carrying out the quarterly allowance auctions (Stephan 2009: 4; ENE 2010: 5).

In addition to the regional organization, the MoU provided for the creation of a further institutional arrangement, a multi-state working group charged with assessing "potential options for addressing leakage" in consultation with "a panel of experts, stakeholders and representatives of the regional transmission organizations" (Sec. 6.A.1.a RGGI MoU). Finally, an independent market monitor ("Potomac Economics") has been contracted to monitor the operation of the RGGI allowance market, for instance with a view to market manipulation, assessing auction implementation, and recommending changes to the market rules (EDF 2013c: 6).

Amendment, Expansion of, Withdrawal from or Mutual Termination

These questions do not only arise in the context of a link between ETS, but in any cooperative arrangement where fluctuations in membership can have impacts on all other participants. Hence, the RGGI MoU also addresses questions explicitly highlights the Parties' intention to expand the geographic reach of RGGI. Thus, the signatory states "shall work together to encourage Non-Signatory States to become Signatory States" (Sec. 5.A.2 RGGI MoU). According to Section 5 ("Addition or Removal of Signatory States") of the RGGI MoU, the procedural requirement for a state to become a signatory is its adoption of the agreement and an amendment of the RGGI MoU.

An amendment of the RGGI MoU can be carried out "in writing upon the collective agreement of the authorized representatives of the Signatory States" (Sec. 8 RGGI MoU). Accordingly, the RGGI MoU was e.g. amended when Maryland declared its intention to become a signatory state and the regional emissions budget set forth in the MoU was increased to include Maryland's allowance budget (Second Amendment to Memorandum of Understanding of 20 April 2007, para. 2).

To withdraw from the MoU and thus from RGGI, signatory states "may, upon 30 days written notice, withdraw [their] agreement to [the RGGI] MOU and become a Non-Signatory State. In this event, the remaining Signatory States would execute measures to appropriately adjust allowance usage to account for the corresponding subtraction of units from the Program" (Sec. 5.B RGGI MoU). In the past, this procedure has been used when the state of New Jersey – one of the original signatory states – withdrew its agreement to the RGGI MoU on 29 November 2011. In accordance with Section 5.B of the RGGI MoU, the (admissible) withdrawal took effect from 1 January 2012.[54]

54 In terms of allowance allocation, New Jersey's withdrawal resulted in a reduction of the CO_2 cap from 188 million tonnes annually (between 2009-2011) to 165 million tonnes of CO_2 annually for the second control period (2012-2103) and 91 million tonnes in 2014, with an annual 2.5% decrease until 2020 (C2ES 2013). At the state level, New Jersey's withdrawal resulted in a lawsuit filed by two non-profit organizations, Environment New Jersey and the National Resource Defense Council, who argued that the withdrawal had breached the public notice-and-comment provisions of the New Jersey Administrative Procedure Act (NJ APA); New Jersey's Superior Court ruled that the approach adopted at state level had in fact breached NJ APA (Rodriguez/Dobbins 2014), but this procedural violation did not affect the validity of the withdrawal from the RGGI programme.

9.1.2 RGGI Model Rule for the Establishment of the RGGI CO_2 Budget Trading Program (2013)

Pursuant to the RGGI MoU, a "Model Rule" shall serve as "the framework for the creation of necessary statutory and/or regulatory authority to establish the Program" (Sec. 3.A RGGI MoU). Based on this mandate, the RGGI Model Rule (RGGI 2008) was collectively elaborated by the participating states and subjected to a public comment and review period. Its objective is to provide guidance on crucial elements for the implementation and operation of the ETS.[55] Again, the RGGI Model Rule is not itself binding on participating states, but its main precepts have been implemented in each state through binding state legislation as a condition for RGGI membership. While participating states thus retain their formal sovereignty (Prag et al. 2012), the resulting outcome is a legal framework that is largely coherent across all RGGI jurisdictions. Rules are thus largely similar, if not identical. In that sense, RGGI displays many of the characteristics ascribed to a "club" in recent literature, offering certain benefits whose enjoyment is, however, conditional on observance of specific rules (see, e.g., Nordhaus, 2015; Keohane et al., forthcoming 2015).

Since its adoption in 2006, the Model Rule has been revised a number of times by unanimous decision of all participants. The most recent revision occurred as part of the scheduled program review in accordance with Section 6.D of the RGGI MoU, a process guided by stakeholder and expert engagement (RGGI 2013: 1) and resulting in a number of fundamental changes, including a revised regional cap and the establishment of a cost containment reserve (RGGI 2012; RGGI 2013; C2ES 2014). An earlier provision in the Model Rule defining price triggers that would allow the establishment of a link to another ETS or an offset crediting mechanisms was removed in the latest revision.

9.2 Western Climate Initiative (WCI)

On 26 February 2007, five U.S. states signed a "Western Regional Climate Action Initiative Agreement" (WCI MoU), which was to become the basis of the Western Climate Initiative (WCI). As a non-binding Memorandum of Understanding, this agreement stipulated the objective of establishing binding emissions caps by 2012 (WCI 2008; Donald 2012). Participation initially consisted of the states of Washington, Oregon, Arizona, New Mexico and California, but a number of Canadian provinces subsequently joined and several U.S. states eventually withdrew from the initiative.[56] Currently, the remaining members of WCI are the California as well as the Canadian provinces British Columbia, Manitoba, Ontario and Quebec. However, while the WCI has not been officially dissolved, the initiative is no longer active as such, its functions have effectively been superseded by WCI, Inc. (see below).

Out of the five remaining members, California and Québec have the most comprehensive climate policies.[57] Both have adopted mandatory greenhouse gas reduction targets,[58] emission reporting rules,[59] and operational ETS.[60] Since 1 January 2014, these ETS have been linked through a bilateral arrangement between both jurisdictions (see below, 2.2.2).

55 The Model Rule provides details on, for example, Compliance Certification (Subpart XX-4), CO_2 Allowance Allocations (Subpart XX-5), the CO_2 Allowance Tracking System (Subpart XX-6), CO_2 Allowance Transfers (Subpart XX-7), and Monitoring and Reporting (Subpart XX-8).

56 Between 2007 and 2011, Montana, Utah and the Canadian provinces of British Columbia, Manitoba, Ontario, and Quebec joined WCI as participants. In 2011, Arizona, Montana, New Mexico, Oregon, Washington and Utah withdrew from WCI, mainly due to changes in state governments or legislatures following the 2010 midterm elections (Powell/Nesteroff 2011). These states have since formed a new voluntary initiative called North America 2050, which seeks to "facilitate state and provincial efforts to design, promote and implement cost-effective policies that reduce greenhouse gas emissions and create economic opportunities" (WCI 2011; Platts 2011). At various times, moreover, Alaska, Colorado, Idaho, Kansas, Nevada, Wyoming, the Canadian province of Saskatchewan, and the Mexican states of Baja California, Chihuahua, Coahuila, Nuevo Leon, Sonora and Tamaulipas have been involved as observers.

57 On 13 April 2015, the Canadian province Ontario announced its intention to launch a cap-and-trade scheme by "join[ing] the cap and trade system under the Western Climate Initiative", http://news.ontario.ca/opo/en/2015/04/cap-and-trade-system-to-limit-greenhouse-gas-pollution-in-ontario.html.

58 California enacted Assembly Bill 32 (AB32), the "California Global Warming Solutions Act", on 27 September 2006, mandating a reduction in greenhouse gas emissions to 1990 levels by 2020; Quebec, in turn, issued Order in Council 1187-2009 on 18 November 2009, adopting a reduction target for 2020 of 20% below 1990 levels.

59 In California, entities meeting certain emission thresholds are required to report their greenhouse gas emissions under the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions contained in Title 17 of the California Code of Regulations, Sections 95100-95157; Quebec emitters are required to report their greenhouse gas emissions in accordance with the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere, contained in the Compilation of Québec Laws and Regulations (CQLR), Chapter Q-2, r. 15.

60 On 27 October 2011, the California Air Resources Board filed a rulemaking on the California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms, which became effective on 1 January 2012 and is contained in Title 17 of the California Code of Regulations, Subchapter 10 (Climate Change), Article 5, Sections 95800 to 96023; on 14 December 2011, Québec adopted the Regulation respecting a cap-and-trade system for greenhouse gas emission allowances, contained in the Environment Quality Act, CQLR, Chapter Q-2, r. 46.1. Both ETS became operational on 1 January 2013, after California's ETS first compliance period was deferred by one year from the original starting date of 1 January 2012 due to market integrity concerns and ongoing litigation.

9.2.1 WCI Memorandum of Understanding (2007)

In its Preamble, the WCI MoU highlights the relevance of combating climate change through joint initiatives.[61] Furthermore, the WCI MoU explicitly makes reference to linking possibilities, both national and international: "We welcome expanding the partners to this initiative to other states, tribes, Canadian provinces and Mexican states and offer monitoring status to any state, tribe or province interested in observing the initiative" (Preamble of the WCI MoU).

Otherwise, the WCI MoU is shorter and also less detailed than the RGGI MoU. Unlike RGGI, where members commit to engage in cooperation, WCI signatory states merely declare their intention to "collaborate in identifying, evaluating and implementing ways to reduce GHG emissions ... collectively and to achieve related co-benefits".[62] According to the WCI MoU, this includes "[p]articipating in a multi-state GHG registry to enable tracking, management, and crediting for entities that reduce GHG emissions, consistent with state GHG reporting mechanisms and requirements."[63] The WCI MoU was later supplemented by a set of design recommendations ("Design Recommendations for the WCI Regional Cap and Trade Program", WCI 2008) and a final design document ("Design for the WCI Regional Program", WCI 2010a), both of which provide further details on the regional ETS.[64]

Like the RGGI MoU, the WCI design documents envision the creation of a regional administrative organization to "ensure integrity, efficiency and consistency" (WCI 2010a: 24).[65] Specifically, the functions of such an organization are listed as:

- Coordinating the regional auction of allowances;
- Tracking emissions and provide public information on progress towards emissions goals;
- Reporting to Partners on market activity;
- Serving as a forum for partner jurisdictions to update one another on program progress;
- Coordinating review and adoption of protocols of offsets;
- Coordinating review and adoption of updated reporting protocols;
- Coordinating review and issuing of offsets certificates; and
- Suggesting criteria and means to accredit service providers to deliver validation and verification services (WCI 2010a: 25).[66]

Based on this mandate, WCI, Inc. was created in 2011 as a private, non-stock, non-profit corporation "to provide administrative and technical services to support the implementation of state and provincial greenhouse gas emissions trading programs" (WCI Inc. 2011; WCI 2010a: 25). However, only three of the remaining WCI members – British Columbia, Québec and California – are also shareholders of WCI, Inc. According to the Articles of Incorporation and By-Laws, the "exclusive purposes" of WCI, Inc. are to provide "technical and scientific advisory services ... in the development and collaborative implementation of their respective greenhouse gas emissions trading programs", as well as any other "functions related to the reduction of greenhouse gas emissions or the increase in carbon sequestration" and "to emissions trading programs or other programs with the purpose of improving environmental quality" (WCI, Inc. 2011; WCI, Inc. 2013).

Complementing this broad mandate is an enumerated list of activities set out in Article 1 of the By-Laws, which lists development, implementation and maintenance of a registry, market monitoring services, administration of offsets, and technical support to program review (WCI, Inc. 2013).[67]

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61 For instance, the signatories highlight that they "recognize the need for collaboration among states to develop climate change policies that provide consistent approaches to recognize and give credit for actions to reduce GHG emissions" (WCI MoU, Preamble).

62 In part, this heightened degree of central coordination in RGGI may be ascribed to pre-existing institutional cooperation and regulatory harmonization in the geographically and politically more contiguous Northeast and Mid-Atlantic U.S., where joint forums such as NESCAUM already had resulted in some degree of institutionalization of cross-border cooperation. By contrast, the WCI not only covers a much vaster geographic area, but also crosses national borders to include both U.S. states and Canadian provinces, both of which have arguably contributed to a lower level of institutional cooperation.

63 Such a WCI Climate Registry was intended from the outset "to allow for an accurate reporting and accounting infrastructure to underpin a cap and trade programme" (Mace et al. 2008: 35).

64 The resemblance to RGGI and how the RGGI Model Rule followed the RGGI MoU is no coincidence; in fact, WCI expressly highlights "the benefit of building on the experience of program operations in Europe and RGGI" (WCI 2010a: 4).

65 See also the 2008 Design Recommendations, which mandate creation of such an organization to "reduce administrative costs and improve program transparency and consistency" (WCI 2008: 13).

66 Regarding the delegation of functions to such an organization, RGGI clearly served as a model. The 2010 design document expressly notes that "RGGI has created a non-profit corporation, RGGI Inc., which is an example of the type of organization that the WCI Partner jurisdictions are considering" (WCI 2010a: 25).

67 Art. 1 of the By-Laws reads:

"The activities of the Corporation in performing these purposes may include the following:

Additionally, several private entities have been contracted to provide a number of services under WCI, such as administering and facilitating auctions (Auction Administrator and Financial Services Administrator) and monitoring market operation (Market Monitor).[68] Apart from a reduction of administrative costs due to cost sharing, a further benefit ascribed to reliance on WCI, Inc. and private contractors is enhanced security and effectiveness of the program infrastructure (Air Resources Board 2014).

Both design documents contain a number of provisions on WCI membership[69] and on safeguarding the integrity of its ETS.[70] Additionally, the WCI design highlights the benefits of linking and outlines a detailed set of substantive criteria and procedures for the creation of a link between WCI partner jurisdictions, as well as between the WCI and other ETS (WCI 2010a: 44-46). Substantive criteria include stringency of emissions reduction targets; information requirements and tracking systems; emissions accounting for electricity traded between jurisdictions; monitoring, reporting, verification, compliance, and enforcement provisions; and treatment of offsets. Procedurally, WCI partner jurisdictions considering a link are to consult with other partner jurisdictions about whether the substantive criteria are met. Aside from bilateral links to other ETS, the design document also allows for unilateral links and links to offset programs. Importantly, the conditions stipulate a mechanism to ensure that compliance instruments from other ETS or offset crediting mechanisms can only be used once.

9.2.2 Linking Agreement between California and Québec (2013)

Of the remaining WCI members, the U.S. State of California and the Canadian Province Québec are the only ones that have set up an ETS. From its adoption in 2006, the Californian climate legislation underlying the state's ETS mandated consultations "to facilitate the development of integrated and cost-effective regional, national, and international greenhouse gas reduction programs" (AB32, Sec. 38564). Meanwhile, Québec acknowledged early on that its "carbon market, due to the size of the province's economy, would not be fluid enough to be efficient in the long term" (Québec 2014: 6).[71] Despite the common design framework adopted under the WCI and the fact that both systems were "highly harmonised and complementary from the outset" (IETA 2014: 9), intense negotiations and several years of preparation were still necessary to facilitate the eventual linking decision.[72]

With their shared WCI experience as a foundation, California and Québec entered an arrangement on 1 October 2013 (the "Agreement between the California Air Resources Board and the Gouvernement du Québec concerning the harmonization and integration of cap-and-trade programs for reducing greenhouse gas emissions", hereinafter "California-Québec Agreement") to link both ETS by 1 January 2014.

a) developing, implementing, and maintaining a system for tracking compliance instruments for emissions trading programs, including allowances and offset certificates, that conforms to the requirements of State and Provincial programs;

b) developing, implementing, and maintaining capability to execute auctions of allowances that conforms to the requirements of State and Provincial programs;

c) developing, implementing, and maintaining capability to conduct market monitoring of allowance auctions and allowance and offset certificate trading that conforms to the requirements of State and Provincial programs;

d) developing, implementing, and maintaining capability to provide technical reviews and administrative processing of offset project documentation that conforms to the requirements of State and Provincial programs;

e) conducting technical analyses to evaluate existing programs or possible modifications to programs; and

f) developing, implementing, and maintaining the capability to conduct the business operations necessary to perform the above activities (a) through (e)."

68 Currently, Markit North America, Inc. has been retained to act as the Auction and Reserve Sale Administrator, and Deutsche Bank National Trust Company Americas acts as the Financial Services Administrator for Auctions and Reserve Sales. Monitoring Analytics, LLC serves as the independent Market Monitor for the WCI allowance market, monitoring allowance auctions, reserve sales, and secondary markets.

69 Conditions for the expansion of the WCI ETS were set out in the 2008 Design Recommendations, which noted that "[n]ew WCI Partner jurisdictions will come into the cap-and-trade program at a regionally coordinated and designated time, such as the beginning of the relevant compliance period"; in addition, the Recommendations proposed that "new WCI Partner jurisdiction must have adopted an economy-wide GHG reduction goal for 2020 that is at least as stringent as the WCI regional goal" before joining WCI (WCI 2008: 13). While the final design document omits any stipulations on accession or withdrawal, it "invites" and "encourages" additional jurisdictions from across North America to join WCI (WCI 2010a: 4 and 6).

70 For instance, the 2010 design document provides further details on "monitoring and reporting measures that will mitigate market manipulation" (WCI 2010a: 19), and notes that Parties will need to incorporate "specific requirements for registration, validation, monitoring, quantification, reporting, verification, certification, and issuance of offsets" into their legislative and/or regulatory processes (WCI 2010a: 18).

71 With 80 covered installations and a cap of 80 million tons, the Québec ETS is relatively small, and is hence expected to benefit from the link to California in terms of market liquidity, price stabilization, and overall cost of mitigation efforts.

72 While the establishment of domestic ETS in both California and Quebec preceded the link, government officials and stakeholders from both sides had already worked together from the outset within the framework of the WCI to enable an eventual link. Harmonized auctions, compliance requirements and MRV rules, as well as the integrity of the system more generally were salient issues in the negotiations (IETA 2014: 10). Among the challenges encountered in the process were the different languages and thus legal terminologies in the applicable regulations of each jurisdiction, different legal cultures, and different procedural frameworks (e.g. for public consultations), see Quebec 2014: 6. In May 2012, the Californian Air Resources Board released draft amendments to enable linkage, followed by Québec in December 2012. Under Californian legislation, the Governor of that state had to first make an official finding about the link before it could enter into effect, a condition Governor Edmund G. Brown met on 8 April 2013.

Despite being designated an "agreement", however, the linking arrangement is only politically, but not legally binding, due to the lacking power of federate states and provinces to conclude formal treaties with binding force under public international law. [73] California and Québec expressly acknowledge this in the document when they state that "the present Agreement does not, will not and cannot be interpreted to restrict, limit or otherwise prevail over each Party's sovereign right and authority to adopt, maintain, modify or repeal any of their respective program regulations" (Preamble).

Overall, the California-Québec Agreement is structured in five chapters, titled "General Provisions", "Harmonization and Integration Process", "Operation of the Agreement", "Miscellaneous" and "Final Provisions". Central to the establishment of the link between California and Québec is the commitment to "provide for the equivalence and interchangeability of compliance instruments issued by the Parties for the purpose of compliance with their respective cap-and-trade programs" and "permit the transfer and exchange of compliance instruments between entities registered with the Parties' respective cap-and-trade programs using a common secure registry" (California-Québec Agreement, Article 1b and c).[74] As stated in the preamble, implementation of this objective and other provisions in the California-Québec Agreement required domestic legislative and regulatory adjustments by each party.[75] Both sides took the necessary steps to make the link operational by its intended starting date of 1 January 2014, and while it is still too early to evaluate its effectiveness, the first joint auction in November 2014 has been positively evaluated (ARB 2014b).

Routine Operation: Regulatory Harmonization, Cooperation, Consultations, and Information Sharing

Cooperation, harmonization and integration are aspirations reflected throughout the linking arrangement. California and Québec expressly highlight that they "share a common interest in working jointly and collaboratively toward the harmonization and integration of their mandatory greenhouse gas emissions reporting programs and of their cap-and-trade programs for reducing greenhouse gas emissions" (California-Québec Agreement, Preamble).[76] Unsurprisingly, regulatory harmonization is thus defined as one of the primary objectives of the linking arrangement (Article 1a), which seeks to ensure the compatibility and integration of each jurisdiction's rules on emissions trading and mandatory greenhouse gas emission reporting. In the event of differences or potential design changes, the California-Québec Agreement mandates consultations and cooperative efforts at harmonization between both parties (Article 4).[77] More specific harmonization obligations are set out in the provisions on offset protocols,[78] joint auctions,[79] and a common program registry.[80]

Parties also undertake to cooperate in the application of these harmonized rules, for instance in the area of market supervision and enforcement. [81]

73 See, for instance, the evidence given to the UK Energy and Climate Change Committee by Forrister (2014): "States and regions in the United States do not have a treaty-making authority, so … [t]hey have done something quite clever in their arrangement with Quebec in that they have done it through a lighter touch approach where they own a common registry together. They are shareholders in a non-profit entity that runs a joint registry and they are able to administer it that way without going the step of a treaty. … They have common governance of it, but it is established not as an international agreement but as a co-operative arrangement between states."

74 Article 6 of the California-Québec Agreement further clarifies that "mutual recognition of the Parties' compliance instruments shall occur as provided for under their respective cap-and-trade program regulation." In addition, "[e]ach Party recognizes and respects the authority of the other Party to take actions to recover or void compliance instruments that have been surrendered or that are held by registered entities in their respective cap-and-trade programs."

75 California-Québec Agreement, Preamble: "the Parties recognize that the harmonization and integration of their mandatory greenhouse gas emissions reporting programs and their cap-and-trade programs are to be attained by means of regulations adopted by each Party".

76 Additionally, parties note that they "have developed constructive working relationships among their respective staff and officials" and "proposed harmonized approaches for consideration by each Party on topics including, but not limited to, mandatory reporting, issuance of compliance instruments, program scopes, compliance requirements, offset protocols, program registry, auction design and execution, auction platform, market regulations, invalidation of offset credits, enforcement, public disclosure of information, and information sharing among Parties" (California-Québec Agreement, Preamble). A cooperative approach is again invoked e.g. in the context of rules on "Supervision and Enforcement" (Article 10), according to which parties shall also "work cooperatively to prevent fraud, abuse and market manipulation and to ensure the reliability of the joint auction and their respective program."

77 Specifically, Art. 4 sets out that, "where a difference between certain elements of the Parties' programs is identified, the Parties shall determine if such elements need to be harmonized for the proper functioning and integration of the programs" and "shall consult each other regarding a harmonized approach." Also, in the event that either party, or both parties together, "consider making changes to their respective programs, including changes or additions to emissions reporting regulation, cap-and-trade program regulation, and program related operating procedures … any proposed changes or additions to those programs shall be discussed between the Parties" and "sufficient time" be given "to enable effective public review and comment prior to adoption." Finally, if conditions arise that necessitate rapid or emergency program changes or other actions, parties endeavor "to harmonize such changes to maintain regulatory harmonization and to resolve the conditions."

78 Art. 5 of the California-Québec Agreement specifies that proposed changes or additions to applicable offset protocols, or changes to the procedures for issuing credits, require prior consultations between parties.

79 Pursuant to Art. 8 of the California-Québec Agreement, the auctioning of emission allowances and emission units "shall occur jointly and in accordance with the harmonized procedures developed by the Parties, as provided for under their respective cap-and-trade program regulations." Joint auctions are already declared an objective of the linking arrangement in Article 1 e. Since both Québec and California apply a reserve price for auctions – effectively a floor for the price of allowances – the fact that there are joint auctions also means that there is one common floor price for the linked system. The reserve price started at USD 11.34, and increases each year by 5% plus the inflation rate.

80 Art. 9 of the California-Québec Agreement specifies that the parties "shall work together to develop and use common electronic platforms in order to ensure program compatibility, integrity, and integration, including but not limited to a program registry platform and an auction platform."

81 Art. 10 of the California-Québec Agreement requires parties to "work cooperatively to prevent fraud, abuse and market manipulation and to ensure the re-

Whenever consultations are called for, these "shall build on existing working relationships and shall enable Parties' staff to work constructively through workgroups", albeit under observance of the "procedural requirements of each Party [...] including appropriate and effective openness and transparency of each Party's public consultations" (Article 3).

A further tenet in the linking arrangement between California and Québec is the agreement to promote "the sharing of information to support effective analysis, operation, enforcement and supervision of the market for compliance instruments" (Article 1f). Article 14 affirms the importance of information, calling on parties to "jointly arrange to share information collected and developed under their respective programs" in order to "support and enhance the supervision and enforcement of the Parties' respective program regulations." More specific information duties are inter alia stipulated for developments potentially affecting market integrity,[82] supervision and enforcement,[83] and public announcements.[84] Confidentiality of sensitive information is, however, also addressed in the linking arrangement, which clarifies that "[n]othing in this Agreement requires a Party to breach confidentiality obligations or requirements prohibiting disclosure to which it is bound under its own laws, nor compromise the security with which information is held, nor disclose confidential information such as commercially sensitive or personal information" (Article 14). Additionally, parties undertake to protect the information they provide and receive in accordance with the privacy legislation applicable in each of their jurisdictions", and to take all necessary measures, particularly "with respect to their mode of communication, control, management and destruction."

Institutional Arrangements: Non-profit corporation, staff-level workgroups, Consultation Committee and technical platforms

Article 11 of the California-Québec Agreement specifies that parties "shall continue coordinating administrative and technical support through the WCI, Inc., which was created to perform such tasks for one or both of the Parties as applicable." Among the functions enumerated above (see Section 9.2.1), WCI, Inc. and its retained contractors administer the joint registry and joint auctions carried out by California and Québec (IETA 2014: 9).

Already during preparation of the linking arrangement, California and Québec formed several staff workgroups to discuss specific aspects of implementation (ARB 2013: 12):

- A Tracking System Workgroup (TSWG) to discuss development and operation of the joint registry, the "Compliance Instrument Tracking System Service (CITSS)" (see below); [85]
- An Auction and Monitoring Workgroup (AMWG) to discuss the development of the joint auction platform and the conduct of joint auctions (see below);[86]
- A Management Workgroup (MWG) to set the overall priorities and track the progress of the staff-level work groups.[87]

While the California-Québec Agreement does not provide further specifications on the workgroups and their mandates, it references them in Article 3 by declaring that "[c]onsultation shall build on existing working relationships and shall enable Parties' staff to work constructively through workgroups under the direction of the Parties' officials." Functionally, these staff workgroups afford California and Québec a standing forum to assess the linking arrangement and its operation, and to discuss improvements where needed.

liability of the joint auction and their respective program" and to "work cooperatively in applying the rules, laws and regulations governing the supervision of all transactions carried out among registered entities of each of the Parties and of any auction or reserve sale."

82 According to Art. 7 of the California-Québec Agreement, parties "shall keep each other informed of any investigation, pertaining to but not limited to acts or omissions on the part of any of its registered entities or other persons authorized to act under the programs and any violation, penalty or fine, or decision rendered with respect to those acts or omissions."

83 Under Art. 10 of the California-Québec Agreement, parties "shall facilitate, in accordance with the privacy legislation applicable in each of their territories and the provisions of Article 14 hereunder, the sharing of information to support each Party's effective analysis, supervision and enforcement of the applicable laws and regulations."

84 As Art. 15 of the California-Québec Agreement states, parties "shall keep each other informed in advance of any public announcement related to the mandatory reporting of greenhouse gas emissions and the cap-and-trade programs for reducing greenhouse gas emissions. Any announcement concerning the harmonization or integration of the Parties' programs shall be prepared and, if possible, made public jointly."

85 More specifically, the TSWG ensures that the regulatory requirements in each jurisdiction are properly reflected in the CITSS specifications and operations, discusses and resolves issues related to CITSS development priorities and schedules, and serves as the forum in which California and Québec staff discuss requirements for the CITSS help desk, see ARB 2013: 12.

86 The AMWG ensures that the regulatory requirements in each jurisdiction program are properly reflected in the auction platform specifications and operations. Additionally, it discusses and resolves issues related to auction platform development priorities and schedules, and serves as the forum in which California and Québec staff discuss the requirements for market monitoring analyses by the market monitoring contractor, see ARB 2013: 12.

87 Essentially, the MWG addresses any issues that cannot be resolved in the other work groups. It informs WCI, Inc. of the jurisdictions' priorities for developing and maintaining the administrative capabilities needed by each jurisdiction's program, which are used by WCI, Inc. to develop its plans for consideration by its Board of Directors, see ARB 2013: 12.

Outcomes from the workgroups are then implemented by WCI, Inc. and its retained contractors or, if the scale and nature of the issue warrants it, presented to the Board of Directors of WCI, Inc. for a decision.

In addition to the staff workgroups, the linking parties have established a Consultation Committee composed of one representative from each party, a role assigned ex officio to specific offices in each jurisdiction[88] (Article 12 of the California-Québec Agreement). Meetings are held "as needed to ensure timely and effective consultation in support of the objectives of this Agreement". More specifically, the Consultation Committee is mandated with monitoring the implementation of all harmonization and integration efforts for the trading systems and greenhouse gas emissions reporting rules, making related recommendations, providing an annual report on the results of the linking arrangement, and – as a catch-all clause – address any other issues raised by the parties (Article 12).

In terms of institutional arrangements, thus, the link between California and Québec operates through several levels of governance, ranging from purely operational to political: WCI, Inc. and its contractors for the day-to-day implementation of functions related to the link, with the ability to escalate any matters of a political nature to the Board of Directors of WCI, Inc.;[89] informal workgroups convening staff from California and Québec on a regular basis to discuss and monitor specified technical matters under the linking arrangement, and formulate recommendations to WCI, Inc.; and finally the Consultation Committee, which brings a higher-level representative each from California and Québec as needed to evaluate the performance of the linking arrangement, issue recommendations and report annually to the parties. A pragmatic arrangement, this institutional arrangement ensures that recurrent technical and administrative functions are performed by an existing private entity and its contractors, and assigns the monitoring and adjustment of the link – which can involve political decisions – to officials from the participating jurisdictions, again differentiating between staff-level workgroups and senior representatives in the Consultation Committee (and indirectly the WCI, Inc. Board of Directors).

At a technical level, meanwhile, the link between California and Québec primarily draws on two institutionalized platforms, one to track allowance ownership and transactions between both systems, and one to carry out joint auctions. Both issues were considered critical for the harmonization process, counting among the few issues that required absolutely identical provisions in each ETS (Québec 2014: 6).

The first platform, the Compliance Instrument Tracking System Service (CITSS) is an online tracking system that provides accounts for ETS participants to hold and retire compliance instruments and to record transactions of compliance instruments with other account holders.[90] It was designed to enable the transfer of compliance instruments across participating jurisdictions, a functionality that was extensively tested in anticipation of the link between California and Québec.[91] Overall, updating the configuration of the CITSS to support linking was considered a routine measure, and was executed under the oversight of the TSWG workgroup (ARB 2013: 18).

The second platform for the joint auctioning of allowances presented greater challenges because both ETS operated in different currencies, and posted a different reserve price, or minimum price, for allowances. Following negotiations, California and Québec decided that the minimum price for each joint auction would be the higher of the two the annual reserve prices after currency conversion.[92] Québec participants are allowed to make bids, deposit financial guarantees and pay for allocated emission units in either Canadian or American dollars, but not both. And finally, an Auction Exchange Rate (AER) is set prior to each joint auction and made public on the preceding business day, based on the most recently available noon daily buying rate for U.S. and Canadian dollars as published by the Bank of Canada (Québec 2014: 6).

88 Oddly, the WCI Inc. Board of Directors also includes British Columbia, despite the fact that B.C. is not part of the linked ETS, and has opted for a carbon tax instead of a cap-and-trade-system.

89 Oddly, the WCI Inc. Board of Directors also includes British Columbia, despite the fact that B.C. is not part of the linked ETS, and has opted for a carbon tax instead of a cap-and-trade-system.

90 Specifically, the CITSS is used to register entities participating in the California and Québec programs; track the ownership of compliance instruments; enable and record compliance instrument transfers; facilitate the submission of compliance instruments as required for compliance; and support market oversight by providing access to account and transfer data (ARB 2013: 17-18).

91 Testing not only examined the ability to transfer units between Québec and California, but also assessed other CITSS functions, such as: application of holding limits; confirming the functionality of corporate associate groups within and across both Québec and California; and ensuring accurate data reporting for market monitoring for each program (ARB 2013: 18).

92 For vintage year 2014, the auction reserve prices stood at 11.39 CAD in Québec, and 11.34 USD in California, rising annually by 5% plus inflation.

Dispute Settlement and Resolution of Differences

Article 4 mandates consultations for any differences in ETS design which may affect the link.[93] Under Article 18, the Parties shall consult each other constructively to resolve arising differences; to that end, they shall use and build on established working relationships, or constructively engage through the Consultation Committee, and if needed with additional officials of the Parties, or their designees, if approaches for resolving differences that are acceptable to the Parties cannot be developed in a timely manner. There is no mechanism to resolve differences or disputes between market participants. For the latter, judicial recourse would consist of lawsuits in the ordinary courts, based on the principles of jurisdiction and legal standing set out in bilateral treaties and general international private law. Disputes between the jurisdictions themselves that are not purely civil in nature would likely only be amenable to a political solution, unless either party can make a credible case that its rights or duties arising from other legally binding arrangements in force between the parties or from general international law (international custom and general principles of law) have been violated, although – given the lacking international legal personality of U.S. states and Canadian provinces – such formal action would likely have to be brought forward by the federal government of each country. Given the domestic and foreign political ramifications, such action is unlikely, increasing the pressure to achieve a political solution or alternatively face the consequence of a termination of the link.

9.3 European Emissions Trading System (EU ETS)

9.3.1 Agreement on the European Economic Area (1992)

Signed on 2 May 1992, the Agreement on the European Economic Area (hereinafter EEA Agreement) extends the EU internal market and its free movement of goods, persons, services and capital to Norway, Liechtenstein and Iceland, who in turn adopt a majority of EU legislation and participate in its elaboration.[94] Because the link between the EU ETS and Norway, Liechtenstein and Iceland has also built on elements of the EEA Agreement, the latter will first be described in this section. Also, certain governance elements in the EEA Agreement, such as institutional arrangements and dispute settlement mechanisms, may provide building blocks for future links between EU-ETS and other ETS in EEA member countries.

In its Preamble, the EEA Agreement emphasizes the benefit of cooperation and friendly relations,[95] invoking a common "basis of equality and reciprocity" and "an overall balance of benefits, rights and obligations" for its parties. Such language illustrates the importance of shared cultural and economic ties in any effort to harmonize regulatory frameworks and pursue greater integration, and also has a bearing on linking of ETS.

A number of standard treaty rules (such as conditions and procedure of withdrawal, Article 127) are relevant for the routine operation of the Agreement. Among these are rules on joint institutions and the amendment of internal legislation, both of which will be explained below. Additionally, the Agreement regulates how to deal with disruptive internal or external circumstances, and establishes a dispute settlement mechanism. These, two, will be addressed in greater detail below.

Institutional Arrangements: Council, Joint Committee, and Joint Parliamentary Committee

Several institutions have been set up under the EEA Agreement. An EEA Council composed of representatives of the Council of the European Union, the European Commission, and the Governments of the EFTA States[96] (Article 90) is responsible for giving "political impetus in the implementation" of the EEA Agreement; to this end, it "shall assess the overall functioning and the development of the Agreement [and] take the political decisions leading to amendments of the Agreement" (Article 89.1).

93 According to Art. 4 of the California-Québec Agreement: "In the case where a difference between certain elements of the Parties' programs is identified, the Parties shall determine if such elements need to be harmonized for the proper functioning and integration of the programs. If so determined, the Parties shall consult each other regarding a harmonized approach" (Article 4 of the Agreement).

94 Promoting "a continuous and balanced strengthening of trade and economic relations between the Contracting Parties with equal conditions of competition, and the respect of the same rules, with a view to creating a homogeneous European Economic Area" forms the principal objective of the EEA Agreement (Article 1 of the EEA Agreement).

95 Indeed, it highlights the "privileged relationship between the European Community, its Member States and the EFTA States", highlighting that it "is based on proximity, long-standing common values and European identity."

96 The term "EFTA States", according to Article 2 of the EEA Agreement, for the purposes of the Agreement, refers to Iceland, the Principality of Liechtenstein and the Kingdom of Norway. Thus, it does not include the Swiss Confederation, which is also a member of the European Free Trade Association (EFTA), but not a member of the EEA Agreement.

A second body, the EEA Joint Committee, consists of representatives of the parties (Article 93.1) and has for its mission to "ensure the effective implementation and operation" of the EEA Agreement (Article 92.1).[97] Meetings take place at least once a month or when requested by the Joint Committee President or one of the parties (Article 94). Finally, the EEA Joint Parliamentary Committee brings together "equal numbers of, on the one hand, members of the European Parliament and, on the other, members of Parliaments of the EFTA States" (Article 95.1) in order to "contribute, through dialogue and debate, to a better understanding between the Community and the EFTA States in the fields covered by this Agreement" (Article 95.3).

Dispute Settlement and Resolution of Differences

Part VII Chapter 3 Section 3 of the EEA Agreement addresses the settlement of disputes arising under the Agreement. Parties "may bring a matter under dispute which concerns the interpretation or application" of the EEA Agreement before the EEA Joint Committee (Article 111.1). To settle the dispute, the EEA Joint Committee "shall be provided with all information which might be of use in making possible an in depth examination of the situation, with a view to finding an acceptable solution" (Article 111.2). Under certain circumstances, notably if the EEA Joint Committee is unable to reach an agreement within a certain timeframe, the matter may also be brought before the Court of Justice (Article 111.3).[98]

Change Management

In Article 97, the EEA Agreement clarifies that it "does not prejudge the right for each Contracting Party to amend … its internal legislation" in areas covered by the agreement. An amendment does, however, require the EEA Joint Committee to first conclude "that the legislation as amended does not affect the good functioning" of the EEA Agreement, or alternately that certain procedures referred to in Article 98[99] have been observed (Article 97).

In the event that "serious economic, societal or environmental difficulties of a sectorial or regional nature" arise, a party may unilaterally take appropriate measures under the conditions and procedures laid down in Article 113 (Article 112.1). Such measures need to be proportionate with regard to their scope and duration (Article 112.2). Before taking such measures, the respective party needs to, inter alia, "notify the other Contracting Parties through the EEA Joint Committee and … provide all relevant information" (Article 113.1).[100] In response to such safeguard measures, any other party may take proportionate rebalancing measures, provided that the safeguard measure has created an imbalance between the rights and obligations under the EEA Agreement and the rebalancing measures are strictly necessary to remedy the imbalance (Article 114.1). Disputes arising in that context are dealt with under the dispute settlement mechanism (see above and Article 111.4).[101]

9.3.2 Inclusion of Norway, Liechtenstein and Iceland into the EU ETS

Norway, Liechtenstein and Iceland were included in the EU ETS when the EU ETS Directive 2003/87/EC was incorporated into the European Economic Area Agreement (European Commission 2007) by way of EEA Joint Committee Decision No. 146/2007 (Pohlmann 2009: 339). As specified in Article 7 of the EEA Agreement, this is the standard procedure to extend the scope of EU directives to the EEA states (Robinson et al. 2007: 193). While it is therefore debatable whether this arrangement constitutes linking or merely an expansion of the scope of the EU ETS (as argued, e.g., by Hawkins/Jegou 2014: 31), several aspects are nonetheless worth mentioning in the context of this study.

97 To this end, the EEA Joint Committee carries out exchanges of views and information and takes decisions in the cases provided for in the EEA Agreement (Article 92.1).

98 Provided that the EEA Joint Committee "has not reached an agreement on a solution within six months from the date on which this procedure was initiated or if, by then, the Contracting Parties to the dispute have not decided to ask for a ruling by the Court of Justice of the European Communities, a Contracting Party may, in order to remedy possible imbalances … either take a safeguard measure in accordance with Article 112(2) and following the procedure of Article 113 … or apply Article 102 mutatis mutandis."

99 Art. of the EEA Agreement reads: "The Annexes to this Agreement and Protocols 1 to 7, 9 to 11, 19 to 27, 30 to 32, 37, 39, 41 and 47, as appropriate, may be amended by a decision of the EEA Joint Committee in accordance with Articles 93 (2), 99, 100, 102 and 103."

100 Further information and consultation requirements are set out in Article 112.2-5.

101 Article 111.4 of the EEA Agreement states that: "If a dispute concerns the scope or duration of safeguard measures taken in accordance with Article 111(3) or Article 112, or the proportionality of rebalancing measures taken in accordance with Article 114, and if the EEA Joint Committee after three months from the date when the matter has been brought before it has not succeeded to resolve the dispute, any Contracting Party may refer the dispute to arbitration under the procedures laid down in Protocol 33. No question of interpretation of the provisions of this Agreement referred to in paragraph 3 may be dealt with in such procedures. The arbitration award shall be binding on the parties to the dispute."

For one, the Joint Committee Decision expressly referenced Article 25 of Directive 2003/87/EC (EU ETS Directive) on links with other ETS, and its Article 1 Para. 2l mirrors the central provision of any linking arrangement when it states that "[a]llowances of the Community system include allowances issued or traded by the EFTA States or their operators", declaring that "no distinction shall be made between such allowances." Still, the Joint Committee Decision differs procedurally and substantively from the linking mandate set out in Article 25 of the EU ETS Directive.[102] Also, only Norway had established an ETS before the Joint Committee Decision was issued,[103] and its design was largely aligned with that of the EU ETS in order to ensure compatibility (EDF/IETA 2013b: 1).[104] Overall, therefore, the circumstances of EEA incorporation are unique, and would not necessarily be characteristic of any other link.[105]

Comprised of a preamble and 4 articles, the Joint Committee Decision specifies which parts of the legal framework underlying the EU ETS are incorporated in the EEA Agreement, making a number of adjustments and also assigning administrative and governance functions to bodies established under the EEA Agreement, such as the Council and the Joint Committee (Mace et al. 2008: 90). Specifically, the Joint Committee Decision assigns to the EFTA Surveillance Authority the various monitoring and approval functions held by the European Commission in implementing the EU ETS, such as the assessment of national allocation plans and deciding on the unilateral inclusion of additional activities and gases (Preamble, Recital 18); an EFTA Advisory Committee is to be established to provide assistance with these tasks. A further institutional requirement is addressed when the Joint Committee Decision mandates that the issue, transfer and cancellation of allowances involving EFTA States and their operators be included in the Community independent transaction log (CITL), with the CITL Central Administrator instructed to include the EFTA states in the performance of its tasks (Preamble, Recital 16). Given its small size, Liechtenstein is given the option of hosting its registry in Switzerland (Article 1 Para. 2j).

In addition to these institutional arrangements, the Joint Committee Decision also spells out a number of substantive adjustments related to harmonization between the legal frameworks on emissions trading in the EU and the EFTA states, as well as exemptions to the rules set out in the EU ETS. For instance, EFTA states are requested to "provide for excess emissions penalties that are equivalent to those in the EC Member States" and to provide information related to review and further development of the EU ETS (Article 1 Para. 2 i and m), but are exempted from provisions related to the first trading period of the EU ETS (Article 1 Para. 2b) and may exceed the limitations on allowance auctioning or sales specified in the EU ETS Directive (Article 1 Para. 2e). Likewise, the Joint Committee Decision exempts a number of combustion installations in Iceland with a rated thermal input exceeding 20 MW, but with reported emissions under 25.000 tonnes of CO_2e, provided the EFTA Surveillance Authority is satisfied that these installations are undertaking equivalent efforts under complementary policies and measures (Article 1 Para. 2t). Interestingly, the Joint Committee Decision also affirms that any future link of the EU ETS with third parties should not result in discrimination of the EFTA states or their operators. This provision foreshadows the complexities involved when one party in a linked system decides to unilaterally link to additional parties, potentially affecting the initial linking partner.

9.3.3 Linking negotiations with Switzerland

Based on the Act on the Reduction of CO_2 Emissions (CO_2 Act),[106] Switzerland introduced an ETS on 1 January 2008 which allowed voluntary participation by certain entities to avoid payment of a CO_2 levy. [107] From 2013, the ETS has become mandatory for large emitters and imposes an absolute limit on aggregate GHG emissions from covered sectors (BAFU 2014). [108]

102 This observation is also affirmed by a press release of the Council of the European Union of 2010 (Council 2010), which sets out the mandate to link the EU ETS to the Swiss ETS and expressly states that this "is the first time that the EU seeks a connection with an existing such scheme", a step which "complements the extension of the EU trading scheme to Norway, Liechtenstein and Iceland."

103 Building on an earlier White Paper titled "Norwegian Climate Policy", Norway adopted an Act Relating to Greenhouse Gas Emission Allowance Trading and the Duty to Surrender Emission Allowances (Greenhouse Gas Emissions Trading Act, or GGETA) on 17 December 2004. It sets out the parameters of an ETS, which became effective on 1 January 2005. Because of an already existing tax on CO_2 emissions, many of the sectors included in the EU ETS were initially excluded in the Norwegian ETS, but this restriction was lifted with the second trading phase starting on 1 January 2008.

104 Amendments to the GGETA for the period 2008 to 2012 entered into force on 1 July 2007, and subsequent amendments of the domestic regulations were made in September 2007 and in February 2009 to align its design features with Directive 2003/87/EC (see EDF/IETA 2013a: 1; Mehling/Haites 2009; UCT Dublin 2008).

105 Similar circumstances would only apply in the context of an existing framework for regional political and economic integration, such as the North American Free Trade Agreement (NAFTA), Mercosur or the Association of Southeast Asian Nations (ASEAN).

106 Bundesgesetz über die Reduktion der CO_2-Emissionen (CO_2-Gesetz), SR 641.71, latest version of 23 December 2011 available online at: http://www.admin.ch/opc/de/classified-compilation/20091310/index.html.

107 Between 2008 and 2012, facilities subject to the CO_2 levy on fuels had the option to adopt a mandatory emission reduction commitment, and obtained tradable allowances in return. Effectively, the CO_2 levy constituted a price ceiling in the voluntary Swiss ETS (see IETA 2014: 1-2).

108 Large emitters set out in an Annex to the Ordinance on the Reduction of CO_2 Emissions (CO_2 Ordinance) are subject to an aggregate emissions cap, which started at 5.63 Mt CO_2 in 2013 and declines 1.74 % annually thereafter. Mid-sized emitters not included in the Annex may continue to opt-in voluntarily in

For several years, Switzerland and the EU have been in formal negotiations to link their ETS. Following a number of exploratory discussions, the Swiss Federal Council formally approved negotiations on 16 December 2009 with a view to concluding a bilateral linking agreement with the EU (BAFU 2009). A year later, on 20 December 2010, the Council of the European Union authorized the negotiations and issued a corresponding mandate to the European Commission (Council, 2010), in keeping with the procedure specified in Article 25 Para. 1 of the EU ETS Directive. [109] Since then, six formal negotiating rounds have been held,[110] bringing together staff and senior officials from the European Commission and the Swiss Federal Office for the Environment.[111] Although the link was originally to become operational by the beginning of 2013, in time for the third trading period of the EU ETS, negotiations were put on hold after Switzerland voted for the introduction of immigration quotas (ICAP 2014a) and only resumed in May 2014.

Few technical details of the resulting linking arrangement have been published (EDF/IETA 2013c: 9), despite the existence of a (confidential) draft linking agreement (BAFU 2013). Progress appears to have been made with regard to general provisions and specific rules for stationary sources,[112] whereas the inclusion of aviation in the linked ETS has proven significantly more contentious.[113] A substantial review of the Swiss CO_2 Act in 2011 allowed revisions to the ETS which better aligned it with the EU ETS; design features affected by this revision included, for instance, voluntary participation, the aggregate cap, and the enforcement regime under the ETS (Hawkins/Jegou 2014: 32). Still, as the INDCs for the EU and Switzerland show, differences exist in the broader climate policy ambition level, which also will affect the stringency of the cap in each ETS. Additionally, a major design difference between the Swiss ETS and the EU ETS relates to coverage of large electric generating units, which are exempted from the ETS in Switzerland based on a compensation duty for CO_2 emissions;[114] this exemption and the compensation duty will be revoked in the event of a link with the EU ETS.[115] As far as governance is concerned, an eventual linking agreement between the EU and Switzerland would likely draw on aspects of the EEA Agreement (see Section 2.3.1 above), notably regarding a joint institution, which may be modelled after the EEA Joint Committee, as well as a common dispute settlement procedure.

9.3.4 Intended ETS linking with Australia

After a decade of contentious partisan debate and a failed attempt in 2009, Australia finally adopted legislation to introduce emissions trading on 8 November 2011.[116] It established a Carbon Pricing Mechanism (CPM) from 1 July 2012, designed as a permit system with fixed carbon prices that was set to convert into an ETS from 1 July 2015 (IETA 2014). A change in parliamentary majorities following the 2013 federal elections resulted in the repeal of this legislation on 17 July 2014, retroactively discontinuing the CPM.[117] Before the repeal, the EU and Australia had announced their plan to create a link between the EU ETS and Australian CPM, starting as a unilateral direct link from 1 July 2015, and converting into a full bilateral link by 1 July 2018 (Commonwealth of Australia/European Commission 2013: 8; Australian Government 2012; Prag et al. 2012). With the repeal of the CPM in 2014, the linking negotiations were rendered obsolete (IETA 2014a: 8). Despite the fact that formal linking negotiations were never concluded, let alone an agreement adopted, the discussions between Australia and the EU did lead to a clearer understanding of certain governance features.

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order to avoid payment of the CO_2 levy.

109 Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 2003/87/EC so as to improve and extend the greenhouse gas emission allowance trading scheme of the Community, Para. 1: "Agreements should be concluded with third countries listed in Annex B to the Kyoto Protocol which have ratified the Protocol to provide for the mutual recognition of allowances between the Community scheme and other greenhouse gas emissions trading schemes in accordance with the rules set out in Article 300 of the Treaty." Art. 300 of the Treaty, now Art. 218 TFEU, sets out a detailed procedure requiring Council authorization of negotiations and, in most cases, approval of the negotiated agreement with the consent of the European Parliament.

110 The negotiation schedule is documented online by the Swiss Federal Office for the Environment, "Verknüpfung der Emissionshandelssysteme Schweiz-EU: Verhandlungsablauf", available online at: http://www.bafu.admin.ch/emissionshandel/10923/10926/index.html?lang=de.

111 Leading the negotiations on each side have been Jos Delbeke, the Director General of DG Climate Action at the European Commission, and Bruno Oberle, Director of the Swiss Federal Office for the Environment.

112 Negotiating parties have, for example, addressed the connection of the Swiss and EU registries, and addressed the need for market oversight and data security rules, see BAFU 2013.

113 Flights outside the EEA have been exempted from compliance obligations under the EU ETS until 2016 (a decision known as "Stop the Clock"), when the Assembly of the International Civil Aviation Organization (ICAO) is expected to decide on the adoption of a global market-based instrument to address GHG emissions from aviation. It is currently uncertain whether and how flights from and to the EEA from third countries – including Switzerland – would be treated under the EU ETS once the exemption is lifted.

114 Under Art. 22 of the CO_2 Act, electric generating units in Switzerland are required to implement best available technology and compensate their CO_2 emissions through sequestration measures, purchase of emission reduction credits, or investment in renewable energy generation. Details are set out in a "Compensation Contract" with the operator of the unit.

115 See BAFU 2014: "Spezialfälle: Fossil-thermische Kraftwerke ... unterliegen der Kompensationspflicht und sind abweichend von der EU vorderhand vom EHS ausgenommen. Im Falle einer Verknüpfung mit dem EU-EHS werden diese Kraftwerke voraussichtlich ins EHS eingebunden."

116 Act No. 131 of 2011, An Act to Encourage the Use of Clean Energy, and for Other Purposes (Clean Energy Act 2011).

117 Act No. 83 of 2014, An Act to Repeal the Clean Energy Act 2011, and for Other Purposes (Clean Energy Legislation (Carbon Tax Repeal) Act 2014).

For the negotiations on a bilateral link, the EU adhered to the formal procedure set out in Article 25 Para. 1 of the EU ETS Directive, which would have resulted in adoption of a binding international treaty.[118] In a joint preparatory document, both parties announced that this agreement would address a number of "key policy issues":

- measurement, reporting and verification arrangements;
- the types, quantities and other relevant aspects of third party units that can be accepted into either scheme;
- the role of land-based domestic offsets;
- implications, if any, for supporting the competitiveness of European and Australian industries in particular sectors exposed to a risk of carbon leakage; and
- comparable market oversight (Commonwealth of Australia/European Commission 2012).

Additionally, the parties announced harmonization measures to ensure greater compatibility of ETS design (Ranson/Stavins 2013: 16), albeit only in the sense that changes would be made to the Australian CPM in order to align it with the EU ETS, not vice versa. Specifically, Australia announced that it would remove the price floor, apply a quantitative restriction on the use of project-based credits issued under the Kyoto Protocol,[119] and set its price ceiling with reference to the expected price of EU allowances (Commonwealth of Australia/European Commission 2012). Australia implemented these changes through legislative amendments to the Clean Energy Act and the Australian National Registry of Emissions Units Regulations (De Wit/Gould 2013). The linking announcement also met with criticism from domestic stakeholders in both jurisdictions, prompting calls for protection of national interest by retaining some degree of flexibility and control over the linking arrangement.[120]

Meanwhile, the interim arrangement which would have unilaterally allowed Australian compliance entities to meet their obligations with EU allowances from 1 July 2015 was not seen as requiring a formal treaty (Commonwealth of Australia/European Commission 2013: 8, 13).[121] At a technical level, however, it required consideration of options to facilitate the transfer of allowances from the European Union Registry to the Australian National Registry of Emissions Units (ANREU). A consultation document prepared by the Australian Department of Climate Change and Energy Efficiency and the European Commission's Directorate-General for Climate Action (DG CLIMA) discussed possible registry arrangements for the interim link, and proposed creation of an indirect registry link through which EU allowances would be held in an Australian government account in the Union Registry while an Australian-issued international unit (AIIU) would be issued in the ANREU to "shadow" said EU allowance (Commonwealth of Australia/European Commission 2013: 8, 17-22).[122] For the envisioned full bilateral link starting on 1 July 2018, by contrast, the consultation document recommended that the indirect link transition to a direct registry link no later than 1 July 2018 (Commonwealth of Australia/European Commission 2013: 8, 23-25).[123] Between 5 and 28 March 2013, stakeholders had the opportunity to file written submissions on the consultation document, an option 18 stakeholders – primarily environmental and trade associations – exercised.[124]

118 In a preparatory document, the parties affirmed that "[i]t is necessary to conclude a treaty between the EU and Australia for the establishment of a full two-way link" so as not to "reduce the combined environmental integrity of the EU ETS and the Australian ETS" (Commonwealth of Australia/European Commission 2013: 8, 16). Adhering to the procedure set out in Art. 218 TFEU, which is referenced in Art. 25 Para. 1 of the EU ETS Directive, the Commissions submitted a recommendation to the Council on 14 January 2013 to initiate formal negotiations on linking the EU ETS to Australia's CPM, see European Commission 2013. A mandate was not issued before the Australian CPM was repealed, obviating the need for formal negotiations.

119 Following the adjustment, Australian compliance entities would only be allowed to use Certified Emission Reduction Units (CERs), Emission Reduction Units (ERUs) and Removal Units (RMUs) up to 12.5% of their compliance liability, within the overall 50% annual limit on the surrender of international units by liable entities, see Commonwealth of Australia/European Commission 2012.

120 See for instance Allens 2012, who recommended that the Australian government "sensibly retain the ability to delink the Australian carbon pricing scheme from the EU scheme if there is sustained volatility in the prices of EU allowances, or if the EU scheme adopts rules or links to another scheme and those rules or that linkage adversely affects the Australian carbon pricing scheme" (Allens 2012).

121 In effect, a joint consultation document issued by both parties explicitly references the mandate for non-binding arrangements with third countries contained in Art. 25 para. 1b of the EU ETS Directive: "Non-binding arrangements may be made with third countries or with sub-federal or regional entities to provide for administrative and technical coordination in relation to allowances in the Community scheme or other mandatory greenhouse gas emissions trading systems with absolute emissions caps."

122 In other words, the indirect registry link would not involve the direct transfer of an EU allowance to the ANREU; rather, the Union Registry's central administrator would open an Australian Government Union Registry Account to be managed by the Australian Clean Energy Regulator, which would facilitate automated issuance of AIIUs whenever an EU allowance is removed from circulation in the Union Registry. AIIUs obtained in this manner could then be traded, cancelled or surrendered for compliance liabilities under the Australian CPM, or alternatively swapped back for the "shadow EU allowances" held in the Union Registry, see Commonwealth of Australia/European Commission 2013: 17-22. Interestingly, the consultation document also notes that Australian liable entities could open their own Union Registry account and would thus already be able to purchase EU allowances, which they could transfer into the ANREU as soon as the registry link was made operational.

123 Such a direct registry link would provide for the registry-to-registry trade of Australian carbon units and EU allowances, effectively making them fully fungible and further supporting the integration of the EU and Australian ETS.

124 Available online at: http://www.climatechange.gov.au/reducing-carbon/consultations/registry-arrangements-facilitate-linking-eu-emissions-trading-system, under "Submissions".

9.4 Other Environmental Agreements

9.4.1 US-Canada Air Quality Agreement (1991)

The bilateral Agreement between the Government of the United States of America and the Government of Canada on Air Quality of 1991 (Air Quality Agreement, also referred to as the "Acid Rain Treaty") was the outcome of high-level negotiations induced by acid rain moving from the USA to Canada (Shabecoff 1988; McLean/Barton 2008). The Air Quality Agreement contains a number of standard provisions such as relevant definitions (Article I) or statements on the purpose of the Agreement (Article II) as well as governance rules on the entry into force, amendment and termination of the agreement (Article XVI). In addition, it contains elaborate rules on, for example, consultation and information sharing, the settlement of disputes, and the establishment of joint institutions. These examples are addressed below.

Overall, both parties credit the agreement with having reduced acid rain and smog significantly, providing "an example of successful bilateral cooperation" (U.S. Department of State 2011) and solving not only the dispute between Canada and the United States but also the problem (Mulroney 2012).

Routine Operation: Consultation, Notification, and Information Sharing

General consultation requirements are enshrined in Article XI. In addition, pursuant to Article V ("Assessment, Notification, and Mitigation") "[e]ach Party shall, as appropriate and as required by its laws, regulations and policies, assess those proposed actions, activities and projects within the area under its jurisdiction that, if carried out, would be likely to cause significant transboundary air pollution, including consideration of appropriate mitigation measures." In addition, Article V sets out notification and consultation requirements. Certain information exchange requirements, for example on monitoring measures, are enshrined in Article VII. This Article also deals with confidentiality matters.

Institutional Arrangements: Air Quality Committee and International Joint Commission

The parties to the Air Quality Agreement also established joint institutions. The Air Quality Committee meets at least once a year and additionally at the request of either party and is required to "assist in the implementation of [the] Agreement"; it is "composed of an equal number of members representing each Party" (Article VIII). Among the functions of the Air Quality Committee are the following: reviewing "progress made in the implementation" of the agreement, including "its general and specific objectives", and preparing and submitting "to the Parties a progress report within a year after entry into force" of the Agreement "and at least every two years thereafter."

To assist the Parties in the implementation of the agreement, the International Joint Commission shall "invite comments, including through public hearings as appropriate, on each progress report prepared by the Air Quality Committee", "submit to the Parties a synthesis of the views presented pursuant to sub-paragraph (a), as well as the record of such views if either Party so requests", and "release the synthesis of views to the public after its submission to the Parties" (Article IX).

Dispute Settlement

The Air Quality Agreement contains a dispute settlement mechanism that can be initiated if the (preferable) consultation approach under Article XI failed to solve the dispute. In such an event, the parties initiate negotiations to settle the dispute (Article XIII). Should this also fail to solve the dispute, the parties are entitled to bring the matter before the International Joint Commission or another agreed form of dispute resolution (Article XIII).

9.4.2 North American Agreement on Environmental Cooperation (1994)

The trilateral North American Agreement on Environmental Cooperation between the Government of Canada, the Government of the United Mexican States and the Government of the United States of America (NAAEC) includes a number of governance approaches that have already been addressed as concepts in the previous sections. These include institutional arrangements (providing for a Commission for Environmental Cooperation (CEC), comprised of a Council, a Secretariat and a Joint Public Advisory Committee; Article 8.2) and the amendment of, accession to and withdrawal from the Agreement (Articles 48-50).

Routine Operation: Cooperation and Provision of Information

NAAEC includes detailed rules on cooperation and the provision of information. These note that the parties "shall at all times endeavor to agree on the interpretation and application of this Agreement, and shall make every attempt through cooperation and consultations to resolve any matter that might affect its operation" (Article 20.1). Information requirements apply, for example, to constellations in which a party plans the adoption of an environmental measure that "might materially affect the operation of this Agreement" or otherwise substantially affect another party's interests under this Agreement (Article 20.2-4).

Institutional Arrangements: Commission for Environmental Cooperation including Council, Secretariat and Joint Public Advisory Committee

The Commission for Environmental Cooperation (CEC) is comprised of a Council, a Secretariat, and a Joint Public Advisory Committee (Article 8.2). The Council "shall comprise cabinet-level or equivalent representatives of the Parties" (Article 9.1). Decisions adopted by the Council shall generally be taken by consensus and made public (Article 9.6 and 9.7). Its functions are to "serve as a forum for the discussion of environmental matters within the scope of [NAAEC]". It has broad oversight functions, promotes cooperation, and deals with questions and differences that may arise regarding the implementation or application of NAAEC (Article 10.1; Phillips 2014: 8). The Council shall cooperate with the NAFTA Free Trade Commission (Article 10.6).

The Secretariat provides "technical, administrative and operational support to the Council" (Article 11.5) and "shall, as appropriate, provide the Parties and the public [with] information on where they may receive technical advice and expertise with respect to environmental matters" (Article 11.7). The Secretariat publishes an annual report on the activities of the Council (Article 12; Phillips 2014: 8). Pursuant to Article 13, it may investigate controversial environmental matters of relevance for the region (McFayden 2014). In accordance with Article 14 and the requirements stipulated therein, the Secretariat "may consider a submission from any non-governmental organization or person asserting that a Party is failing to effectively enforce its environmental law". The Secretariat determines whether "a response from the accused country is warranted" (McFayden 2014; see also Malkawi 2006: 318). Information received by the Secretariat in that context shall be safeguarded from disclosure under the conditions stipulated in Article 11.8. Upon the Council's request, the Secretariat may prepare factual records of environmental complaints against the parties (Article 15.2; see also Charnovitz 1994: 6). The voting requirements for the Council's instructions to the Secretariat and the Council decision to publish the factual report require a two-thirds majority (Article 15.2 and 15.7).

The Joint Public Advisory Committee (JPAC) comprises members of civil society appointed by the parties (Articles 16 and 17). Its overall function is to promote public participation and promote public access to information (Phillips 2014: 9). JPAC "may provide advice to the Council on any matter within the scope of this Agreement, including on any documents provided to it under paragraph 6, and on the implementation and further elaboration of this Agreement, and may perform such other functions as the Council may direct" (Article 16.4).

Dispute Settlement

In addition to the settlement of matters under Article 14-15 (citizen's submission process; see above), NAAEC's Part Five contains provisions for party-to-party disputes (Kirton 2004: 1). As in, for example, the Air Quality Agreement, NAAEC emphasizes that consultations are the general measure to be taken before initiating formal dispute settlement procedures in such party-to-party disputes. NAAEC notes that such consultations can be requested by a Party to determine "whether there has been a persistent pattern of failure" by the other Party to effectively enforce its environmental law (Article 22.1). The notion of "environmental law" "does not include any statue or regulation, or provisions thereof, the primary purpose of which is managing the commercial harvest or exploitation, or subsistence or aboriginal harvesting, of natural resources" (Article 45.2.b). This limitation is held to limit the strength and scope of NAAEC's dispute settlement system (Phillips 2014: 10/11; see also Charnovitz 1994: 7, criticizing the "narrow approach to environmentalism").

It is expressly highlighted that the parties "shall make every attempt to arrive at a mutually satisfactory resolution of the matter through consultations" (Article 22.4). If the consultations fail to resolve the matter, it can be brought before the Council under the conditions determined in Article 23. If the special session of the Council convened in accordance with Article 23 fails to resolve the matter, the Council can, under certain circumstances and by a two-thirds vote, convene an arbitral panel pursuant to the specifications of Article 24.

This arbitral panel comprises five members chosen from a roster of experts in environmental law or international trade disputes (Articles 25 and 27.1).

9.5 Non-environmental Agreements

9.5.1 North American Free Trade Agreement (1994)

The North American Free Trade Agreement (NAFTA) is a trilateral free trade agreement between Government of Canada, the Government of the United Mexican States and the Government of the United States of America establishing a free trade area. It entered into force on 1 January 1994, and is supplemented by the North American Agreement on Environmental Cooperation[125] and the North American Agreement on Labor Cooperation (NAALC).

Chapter 22 includes standard rules on amendments of NAFTA (Article 2202), its entry into force (Article 2203), the accession to NAFTA (Article 2204) and the withdrawal from NAFTA (Article 2205). Governance elements of particular interest are NAFTA's provisions on its routine operation, institutional arrangements, its complex dispute settlement mechanism, and rules on change management.

Routine Operation: Information Sharing and Consultations

The parties reiterate "the special bonds of friendship and cooperation among their nations" (Preamble NAFTA). Generally, the Parties "shall ensure that all necessary measures are taken in order to give effect to the provisions of this Agreement" (Article 103) – a common and relatively vague formulation that has its counterparts in treaties such as the EEA Agreement (Article 3) or the KORUS Agreement (Article 1.3). Although Article 905(3)[126] refers to international standards as reference points, parties are entitled to adopt, maintain or apply more rigorous standards to achieve greater environmental protection when pursuing a legitimate objective (Phillips 2014: 5).

Information sharing and consultation requirements are frequently addressed in NAFTA (see, for example, Article 909.9, 1019, 1907.3 and Articles 723, 914, 1413, 2006, respectively).

Institutional Arrangements: Free Trade Commission and associated Committees

The NAFTA parties established a Free Trade Commission. It comprises "cabinet-level representatives of the Parties or their designees" (Article 2001(1)). Its main responsibilities are supervising the implementation of NAFTA, overseeing its further elaboration, resolving interpretation or application disputes that may arise, and supervising the work of all committees and working groups[127] (Article 2001(2)).

The committees mentioned in Article 2001(2) are generally responsible for monitoring the implementation and administration of certain Chapters. Accordingly, the Committee on Standards-Related Measures, for instance, monitors Chapter 9 (Standards-Related Measures), enhances "cooperation on the development, application and enforcement of standards-related measures", and reports annually to the Commission (Article 913). In addition to its monitoring functions, the Committee on Agricultural Trade also provides "a forum for the Parties to consult on issues related to [Section A – Agriculture]" and reports annually to the Commission (Article 706).

Dispute Settlement – Resolution of Disputes between Parties

Chapter 20 regulates the resolution of disputes between parties. It is "applicable to all disputes regarding the interpretation of application of the NAFTA" and "intended to resolve disputes by agreement, if at all possible" (NAFTA Secretariat 2004; Kilton 2004: 4). As a general rule, like in other agreements (e.g. the Korea – US Free Trade Agreement (KORUS), see 9.5.2), parties to NAFTA shall "make every attempt through cooperation and consultations to arrive at a mutually satisfactory resolution of any matter that might affect its operation" (Article 2003).

125 See above.

126 Article 905.3, Part Three: Technical Barriers to Trade, Chapter Nine: Standards-Related Measures.

127 Annex 2001.2: Committees on Trade in Goods, Trade in Worn Clothing, Agricultural Trade (Article 706) Private Commercial Disputes Regarding Agricultural Goods, Sanitary and Phytosanitary Measures, Standards-Related Measures, Committee on Small Business, Financial Services Committee, Advisory Committee on Private Commercial Disputes, Working Groups on Rules of Origin, Agricultural Subsidies, Bilateral Working Group (Mexico United States), Bilateral Working Group (Canada Mexico), Working Group on Trade and Competition, Temporary Entry Working Group (Article 1605) and other Committees and Working Groups Established under NAFTA.

If other means are nonetheless necessary to resolve the matter, the first step is to initiate consultations under Article 2006. If these consultations fail to resolve the matter, parties are entitled to request in writing a meeting of the Commission for mediation purposes (Article 2007). If the Commission's mediation under Article 2007 also fails to resolve the matter, arbitration can be initiated before an arbitral panel as a "final recourse" (Hufbauer 2005) under the conditions stipulated in Article 2008. The panel submits a final report on the matter (Article 2018). In reaction to non-compliance with the report and in accordance with Articles 2018 and 2019, the "complaining Party may suspend the application to the Party complained against of benefits of equivalent effect until such time as they have reached agreement on a resolution of the dispute" (Article 2019).

Under the conditions laid down in Article 2005, the GATT dispute settlement system can provide an alternative dispute settlement forum for the resolution of disputes between parties.

Dispute Settlement – Review and Dispute Settlement in Antidumping and Countervailing Duty Matters

NAFTA's Chapter 19 provides for a binational panel that reviews the work of national trade adjudication tribunals in case the "aggrieved foreign government feels that a national tribunal of its partner has not properly interpreted that partner's own domestic trade law" (Kirton 2004: 2). Article 1904 "establishes a mechanism to provide an alternative to judicial review by domestic courts of final determinations in antidumping and countervailing duty cases, with review by independent binational panels. A panel is established when a Request for Panel Review is filed with the NAFTA Secretariat by an industry asking for a review of an investigating authority's decision involving imports from a NAFTA country" (NAFTA Secretariat 2004).

Dispute Settlement - Settlement of Disputes between a Party and an Investor of another Party

There is a separate dispute settlement mechanism in place for investment disputes arising between a Party and an investor of another party. Parties to such disputes shall also first attempt to resolve the matter through consultation or negotiation (Article 1118). Under the conditions enshrined in Article 1120, the investor may, "provided that six months have elapsed since the events giving rise to a claim", submit a claim to arbitration under either the International Centre for Settlement of Investment Disputes (ICSID) Convention, the Additional Facility Rules of ICSID, or the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules (Article 1120).

Change Management

Chapter 18 contains rules on the publication and administration of laws. Generally, each party shall designate a contact point to facilitate communications between the parties (Article 1801 NAFTA). Under NAFTA, "laws, regulations, procedures and administrative rulings of general application respecting any matter covered by [NAFTA]" shall also be "promptly published or otherwise made available in such a manner as to enable interested persons and Parties to become acquainted with them" (Article 1802(1) NAFTA). Furthermore, such measures shall also be published in advance and interested persons and parties shall have a reasonable opportunity to comment on such proposed measures to the extent possible (Article 1802(2) NAFTA).

Unlike under the General Agreement on Tariffs and Trade (GATT), parties may adopt temporary trade restrictive measures to ensure compliance with domestic environmental standards ("precautionary clause", Article 907(3); Phillips 2014: 9).

9.5.2 Free Trade Agreement between the Republic of Korea and the United States of America (1994)

The Free Trade Agreement between the Republic of Korea and the United States of America (KORUS) is a bilateral treaty that establishes a free trade area in accordance with Article XXIV of GATT 1994 and Article V of GATS (Article 1.1). It contains general provisions such as Article 1.4 providing the definitions relevant in the context of the Agreement or rules for the amendment, expansion of, withdrawal from or mutual termination of the arrangement (i.e. rules on amendments of the KORUS Agreement, reactions to amendments of the WTO Agreement, rules on accession and the entry into force and termination of the Agreement, see Articles 24.2, 24.3, 24.4, 24.5). In addition to these elements and provisions for the routine operation of the Agreement, it contains particularly interesting governance elements related to institutional arrangements, dispute settlement and change management.

Routine Operation: Consultation Requirements

The KORUS Agreement repeatedly addresses consultation requirements. According to these, the parties are obliged to consult each other under certain circumstances. Consultations are required, for example, under the agreement's Article 19.7 (Labor Consultations) and Article 20.9 (Environmental Consultations and Panel Procedure). Both request the initiation of consultations as preferential option, rather than referring the matter to the Joint Committee (Article 22.2) or dealing with it under the Dispute Settlement mechanism; in fact the initiation of Dispute Settlement would require that parties have failed to resolve the matter within 60 days of the delivery of a request for consultations. Prior to such approaches, the parties "shall make every attempt to arrive at a mutually satisfactory resolution of the matter and may seek advice or assistance from any person or body they deem appropriate" and may – provided the consultations fail to resolve the matter – "request that the [respective] Council[128] be convened" (Articles 19.7.3 and 20.9.3).

Institutional Arrangements

Article 2.14.1 of Section F ("Institutional Provisions") provides for the establishment of a Committee on Trade in Goods that comprises "representatives of each Party." In addition to promoting trade in goods and addressing tariff and non-tariff barriers to trade in goods (Article 2.14.3), the Committee shall, inter alia, "discuss and endeavor to resolve any difference that may arise between the Parties on matters related to the classification of goods under the Harmonized System" and "review conversion to the Harmonized System 2007 nomenclature and its subsequent revisions to ensure that each Party's obligations under this Agreement are not altered" (Article 2.14.4).

Furthermore, the parties have established a Joint Committee under Article 22.2 that functions as a body that is responsible for aspects such as supervising the implementation of the Agreement or seeking "to resolve disputes that may arise regarding the interpretation or application of this Agreement" (Article 22.2.2 a) and d)) As far as voting rules are concerned, the Agreement notes that "[a]ll decisions of the Joint Committee and all committees, working groups, and other bodies established under this Agreement shall be taken by consensus of the Parties."

In addition, Councils on specific matters (e.g. labour or environment) are established. The Labor Affairs Council comprises "appropriate senior officials from the labor ministry and other appropriate agencies or ministries of each Party" (Article 19.5 Institutional Arrangements), and the Environmental Affairs Council similarly comprises "appropriate senior officials from each Party, including officials with environmental responsibilities" (Article 20.6 Institutional Arrangements).

Dispute Settlement

The Dispute Settlement Chapter for the resolution of state-to-state disputes (Chapter 22, Section B) starts off with another reference to consultations: "[t]he Parties shall endeavor to agree on the interpretation and application of this Agreement, and shall make every attempt through cooperation and consultations to arrive at a mutually satisfactory resolution of any matter that might affect its operation" (Article 22.3).

Similar to other Agreements assessed in this study (e.g. NAAEC, NAFTA), either party may request a meeting of the Joint Committee if the dispute is not resolved within 60 days[129] of the initial request (Article 22.8). If this step also remains unsuccessful, the complaining party may refer the matter to the dispute settlement panel in accordance with Article 22.9.1. The panel presents its initial report within 180 days after the panel chair's appointment and its final report 45 days later (Grimmett 2011: 6-8). On receipt of the final report of a panel and pursuant to Article 22.12, "the Parties shall agree on the resolution of the dispute, which normally shall conform with the determinations and recommendations, if any, of the panel".

Apart from the general dispute settlement proceeding, KORUS provides for the settlement of labour disputes (Chapter 19), environmental disputes (Chapter 20), and alternative procedures for disputes concerning motor vehicles (Annex 22-A). Furthermore, it establishes a separate investor-state dispute settlement mechanism (Chapter 11, Section B).

128 Articles 19.5. and 20.6

129 20 days for matters involving perishable products (Grimmett 2011: 6).

Change Management

The KORUS Agreement also contains provisions regulating, for example, how a party must deal with modifications it makes to its own laws. These must be notified to the other party. In that vein, Article 2.13 ("Distinctive Products") lists a number of distinctive products (e.g. traditional liquors)[130]. Under the agreement, the Parties are obliged to "notify the other Party of its existing laws and regulations governing the manufacture of these products, *and thereafter shall notify the other Party of any modifications it makes to those laws and regulations*" *(Article 2.13.3; emphasis added)*.

130 Such as Bourbon Whiskey and Tennessee Whiskey and Andong Soju and Gyeongju Beopju; see http://english.visitkorea.or.kr/enu/FO/FO_EN_6_3_2.jsp.

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