Linking Regional Cap-and-Trade Programs: Issues and Recommendations

Kathryn A. Zyla[1]

Executive Summary

This paper evaluates the potential to link the cap-and-trade programs of the Western Climate Initiative, the Midwest Greenhouse Gas Reduction Accord, and the Regional Greenhouse Gas Initiative. The analysis has identified two steps that could be taken toward linking the three regional programs:

- *Work toward harmonizing administrative systems.* Harmonizing systems for emissions monitoring and reporting, emissions and allowance tracking, and auctioning of allowances could provide administrative efficiencies for jurisdictions and market participants, and would facilitate future linking. Regions could strive to harmonize systems to the extent possible and identify areas in which they cannot. These steps could be taken whether or not the regions decide to link programs through the acceptance of each other's allowances for compliance.
- *Evaluate the impacts of linking programs.* This paper identifies both benefits and challenges to formally linking cap-and-trade programs through the acceptance of one regional program's allowances for compliance in another. Before deciding to take this step, the regions could conduct a study of the projected impacts of linking programs, including changes in allowance prices, distribution of emissions reductions, utilization of flexibility mechanisms, and allowance and investment flows. Regions could also begin to explore the legal structures and agreements that might be used to implement program linking.

Benefits of linking. Linking offers a variety of benefits to the functioning of a greenhouse gas emissions market, to the states and provinces administering regional cap-and-trade programs, and to regulated entities. Linking allowance markets increases compliance flexibility and allowance market liquidity and lowers the overall cost of compliance with emissions caps. Harmonizing administrative systems could lessen duplication of effort and reduce administration costs for the states and provinces, and provide a more consistent set of rules and procedures for regulated entities. Finally, linking could reduce potential competitiveness concerns and emissions leakage by ensuring that regulated entities in the same sector face the same price for greenhouse gas emissions across the regional programs.

Challenges to linking. At the same time, linking raises a variety of challenges to consider. Jurisdictions would give up some degree of control over where emissions reductions occur and in which sectors. The price of allowances in one regional program would affect the price in another, equilibrating at a new price for the aggregate linked program. Differences in allowance prices prior to linking could lead to flows of

[1] This working paper benefitted greatly from the input of states, provinces, and organizations participating in the three regional cap-and-trade initiatives; however, this document does not necessarily reflect the views of these participants.

private-sector investment and auction proceeds from one region to another. To the extent that linking would require modifications to existing legislation or regulations currently in place in states or provinces, steps would have to be taken to amend existing statutes and regulations.

Conclusions. There is significant potential for linking to benefit all of the regional cap-and-trade programs. Some elements of the three regional programs are already compatible and conducive to linking. Other elements in WCI and the Midwest Accord are not yet finalized and could be developed in such a way that they are designed to be compatible with each other and with RGGI. Some elements as currently designed raise potential concerns related to linking, and may require cooperation and further study by the regions. This analysis suggests that there is not a technical barrier to linking; rather there are potential concerns that would have to be addressed if the programs were to link. Likewise, linking is not an all-or-nothing decision—there are different types and degrees of linking, and the regions could take some of these steps now while reserving other decisions for later. This report suggests that the regions take concrete steps now to move toward harmonizing administrative systems, and jointly engage in an evaluation of the projected impacts of linking the three regional markets.

1. Background

1.1 Definition of linking

The three regional climate initiatives in North America (the Western Climate Initiative, the Midwest Greenhouse Gas Reduction Accord, and the Regional Greenhouse Gas Initiative) pose an opportunity to link cap-and-trade programs for greenhouse gases. In this discussion, two types of links are considered:

- The sharing of administrative systems for emissions monitoring and reporting, emissions and allowance tracking, and auctioning of allowances; and
- The acceptance of allowances and/or offset credits from one region for compliance in another.

1.2 Benefits of linking

Together, the three regional greenhouse gas cap-and-trade programs would account for half of the U.S. population and GDP and a third of its GHG emissions, and more than three quarters of the Canadian population and GDP and nearly half of its GHG emissions. Linking these programs would create a larger aggregate program that is more cost-effective, more geographically and economically diverse, and could lay the foundation for a national-level cap-and-trade system in both countries. It could also provide several benefits compared to independent regional programs:

- Linking functionally expands each regional program into a single larger program, increasing compliance flexibility and allowance market liquidity and therefore lowering the overall cost of compliance. This could be particularly helpful if regional programs do not initially have full participation from all member jurisdictions.
- Linking could reduce administrative costs for states and provinces by allowing sharing of administrative systems and technical resources and avoiding duplication of effort.
- Linking could reduce administrative costs for regulated entities by creating a more consistent set of

rules and procedures across the United States and Canada. This consistency would help to streamline business activity in multiple regions with greenhouse gas cap-and-trade programs and reduce barriers to entry in the allowance market.

- Linking could reduce competitiveness concerns and emissions leakage by ensuring that regulated entities in the same sector face the same allowance price for CO_2-equivalent emissions across the regional programs.

1.3 Challenges to linking

Linking the three regional cap-and-trade programs comes with challenges as well:

- Jurisdictions would give up some degree of control over where emissions reductions occur and by which sectors, as this would be dictated by aggregate market forces in a linked program.
- The initial price of allowances in one region prior to linking would affect the price in another after linking, leading to a new allowance price in each region as the larger market price equilibrates. This could lead to economic impacts in each region, both positive and negative.
- Differences in initial allowance prices in each regional program prior to linking could lead to flows of allowances and investment from one region to another, with entities in one regional program participating in the other regional program allowance auctions and secondary allowance markets.
- To the extent that linking would require modifications to existing program design, legislation, or regulations currently in place in states or provinces, steps would have to be taken to amend existing recommendations, statutes, and regulations.

1.4 Principles and goals

Several principles emerged during the course of this evaluation, all based on the premise that the goal of linking is to create the most efficient and robust market for emissions reductions possible in order to achieve emissions reductions efficiently at the lowest possible cost. These principles have guided much of the thinking about the potential benefits of linking programs and also the issues that might arise. These principles include increasing transparency, reducing barriers to participation, increasing allowance market liquidity, and reducing opportunities for collusion, market manipulation, or excess speculation.

1.5 Outline of discussion

This analysis begins with an identification of design elements of cap-and-trade programs that could affect linking, either because of technical impacts on the market or because of policy challenges. These design elements are then broken down into topic areas, which compare the approach of each regional program and evaluate the potential for any program differences to affect a linked market. The paper then identifies issues that might occur if the regional programs were to link, offers recommendations for addressing these issues, and identifies areas for further study.

2. Ready for Linking

Some program design elements across the regional programs are already identical or similar. These elements are considered "ready for linking" either because they are equivalent across the regions or because any differences would not have a notable effect on a linked market.

2.1 Type of emissions limitation

All three regions limit emissions through an absolute cap on emissions; therefore, the type of emissions limitation does not raise any issues for linking the three programs.

2.2 Banking

All three regions allow banking of allowances without limitation (i.e., the submission of allowances for compliance in years after the year in which the allowances are issued); therefore banking does not raise any issues for linking the three programs.

2.3 Penalties for non-compliance

All three regions apply a penalty for any allowance shortfall of three times the shortfall at the end of a compliance period, and jurisdictions may choose to set additional administrative penalties. Both the Midwest Accord and RGGI require penalty allowances for any allowance shortfall to be submitted immediately subsequent to compliance true-up, while WCI requires submission within three months. This should not pose a significant issue for linking. Likewise, just as a disparity in jurisdiction-specific administrative penalties is not viewed as a problem within the regional programs, it should not cause a problem across multiple linked regional programs.

2.4 Compliance periods

All three regions use three-year compliance periods, and these periods are aligned in time. RGGI allows for the extension of a compliance period to four years if a price trigger of $10/ton is sustained for a specified period of time. In the absence of linking, RGGI prices (currently in the $2-$3/ton range in 2010) are considered unlikely to meet this price trigger. In the event that allowance prices did rise enough to trigger a four-year compliance period in RGGI, some shifting of allowances between regions might be seen. For example, consider a scenario in which Midwest and WCI compliance periods end in 2017 while RGGI extends its compliance period to 2018. Entities regulated in the Midwest and WCI programs might shift RGGI allowances to these regional programs for 2017 compliance, with entities regulated in the RGGI program knowing that they would have access to 2018 allowances from all three regional programs to use for RGGI compliance in 2018. The potential impact of different compliance periods among linked programs on allowance flows and allowance prices should be considered as part of the larger study of a linked market recommended below. (See section 5.2.1.)

3. Technical Issues and Recommendations

The following design elements raise technical issues that could affect the ability to link programs and to create a well-functioning allowance market. These issues are able to be addressed, and should not raise significant concerns.

3.1 Administrative systems

The protocols and systems for monitoring and reporting emissions, and tracking emissions and allowances, must be comparable and compatible across programs if allowance markets are to be linked. This does not mean that administrative protocols and systems must be identical, but they must be designed to ensure that reported emissions in each program are equivalent and monitored with comparable rigor (ensuring that "a ton is a ton") and that allowances in multiple linked systems can be appropriately tracked, accounted for, and transferred from one tracking system to another. Even if allowances are not exchanged between programs, there may be significant benefits to the jurisdictions and to regulated entities of harmonizing administrative systems.

The physical location of a program's emissions and allowance tracking system could also pose an issue, as U.S. and Canadian jurisdictions may require their allowance tracking systems to be housed domestically to protect commercially sensitive information.

3.1.1 Definition of allowance and offset credit units

Summary of Issue. RGGI allowances permit the emission of one short ton of CO2, while WCI and Midwest Accord allowances permit the emission of one metric ton of CO2-equivalent. If allowances are to be exchanged between regional programs, a ton must equal a ton. The issue of different allowance measurement units could be addressed by converting allowances each time they are transferred from one program's allowance tracking system to another program's system, or it could be addressed through conversion at compliance true-up.

Recommendation. It is preferable to specify the ratio at which allowances will be accepted for compliance at true-up (and make the conversion once), rather than to make a conversion each time allowances are transferred from one program to another. States and provinces should include language in their rules stating the conversion factor that will be used for converting allowances (and offset credits) from other regional programs and how the conversion will be processed. Modifications will have to be made to each program's allowance tracking system to provide for allowance conversion and to also allow regulated entities to track their interim compliance status prior to compliance true-up.

3.1.2 Emissions monitoring and reporting requirements and timing of reporting

Summary of issue. If allowance markets are linked, emissions monitoring and reporting requirements must ensure that emissions are reported in each regional program with equivalent rigor and accuracy so that "a ton is a ton" across the three linked programs. Without rigorous emissions monitoring and reporting requirements, the environmental integrity of the larger linked program would be compromised. Each region must have confidence in the rigor of any programs with which it links. In addition to ensuring comparable rigor of emissions monitoring and reporting across regional programs, some coordination in emissions reporting will be necessary for a well-functioning linked program. For example, unsynchronized emissions reporting could undermine the smooth functioning of the allowance market and introduce market volatility. If regions are mutually comfortable with the rigor of emissions monitoring and reporting requirements, it may not be necessary for these requirements and administrative procedures and technical platforms systems to be identical, but harmonizing administrative systems could reduce administrative effort for participating jurisdictions and regulated entities.

Recommendation. Emissions monitoring and reporting requirements for electric generators should be evaluated to determine how comparable they are across the three regional programs. An important next

step will be for RGGI and Midwestern Accord states to review the protocols that WCI is currently developing for other sectors, and to identify any concerns.

3.1.3 Allowance tracking systems

Summary of issue. In order to link cap-and-trade programs, the regions would need a technical mechanism for transferring allowances between allowance tracking systems. This will require implementation of communication protocols between tracking systems. Protocols will also need to be built into each program's tracking system to ensure that any requested allowance transfers from one tracking system to another conform with each program's administrative rules. Other issues of transparency are also raised by linking. Tracking systems are critical to providing jurisdictions with information for compliance enforcement. Existing tracking systems should be examined for whether they can be adapted for regional information needs. Additional harmonization or sharing of allowance tracking systems might provide administrative efficiencies or economies of scale.

Recommendation. Jurisdictions in WCI and the Midwest Accord should evaluate the allowance tracking system used by RGGI to determine whether their regions could gain significant administrative efficiencies for participating jurisdictions and regulated entities, as well as savings in costs and development time, by building on RGGI's approach.

3.2 Auction design and administration

While differences in auction design and administration do not pose a technical barrier to linking allowance markets, they may affect the functioning of the market. A common auction platform, common rules, and coordinated timing of auctions would facilitate participation, particularly for smaller firms. Likewise, coordinating these details could help discourage attempts at collusion and market manipulation; e.g., attempts to use the results of one region's auction to influence behavior in another region's auction happening soon after. Unlike other program design elements (e.g., offsets) with significant regional differences, auctions may be a design element with less compelling reasons for regions to make different design choices, particularly when weighed against the benefits of coordination. Given the regions' goal to promote a robust allowance market, jurisdictions should aim to make auction participation as clear and easy as possible, and should therefore attempt to harmonize platforms, rules, and timing as much as is feasible. This harmonization does not require hosting a single cross-regional auction, but it does make a single auction possible in the future if desired.

In RGGI, the participating states determined that having one common regional auction is important for a transparent, well-functioning market, and that coordinating regulatory administration among multiple states is workable. The RGGI participating states found that the challenges of coordinating administration of a common auction became easier over time. Jointly administering a single regional auction has also significantly reduced administrative costs for the RGGI states through the achievement of economies of scale. The Midwest Accord and WCI have not yet finalized many of the details of their auction design, including whether states and provinces will coordinate on a single auction or each hold their own.

Ultimately, each region will weigh its own priorities in determining its auction design. If the regions decide not to align their auction platforms, rules, and timing, the following design elements may have to be coordinated to some degree in order to ensure that linked markets function smoothly and effectively.

3.2.1 Single regional auction or individual jurisdiction auctions

Summary of issue. Holding a single auction facilitates greater participation in the allowance market and provides market information more efficiently. It would be resource-intensive for a bidder to participate in multiple auctions with different rules and administrative procedures. Coordinating auctions increases the initial administrative complexity for jurisdictions, but the effort required for such coordination decreases over time as jurisdictions learn to work together effectively. Jointly administering auctions also reduces administrative costs significantly through economies of scale.

3.2.2 Structure and format

Summary of issue. "Structure and format" include design elements such as the number of rounds, open or sealed bids, uniform or as-bid prices, auction frequency, and lot size. Having different structures makes it more difficult for regulated entities to determine bidding strategy. This complexity favors participation by larger institutions that have the capacity to evaluate bidding strategy for multiple auction structures and will likely reduce overall market participation.

3.2.3 Schedule

Summary of issue. There is a potential for one region's auction results to affect the results of another (as well as a potential for market manipulation) if auctions are held close together but not simultaneously, with bidders using information about auction behavior and the price of allowances in one region's auction to modify their behavior in another region's subsequent auction. (Note: This could be an issue with differently timed auctions within a region as well as between different regions.) However, auction schedules probably do not need to be identical for a functioning market, as long as auctions are adequately spaced in time, transparent, and administered consistently.

3.2.4 Participation

Summary of issue. If auctions have different procedures for qualifying participants, it will be harder for entities to participate (particularly smaller entities with less ability to track multiple sets of auction rules).

3.2.5 Reserve price

Summary of issue. If there are differences in auction reserve prices among regional auctions, this could affect participation in auctions and allowance market prices. For example, if one region sets a reserve price that is well above another region's historical auction clearing prices, bidders might avoid the former's auction in favor of participating in the latter. As the regions' allowance prices converge subsequent to linking, bidders might avoid an auction with a higher reserve price if the reserve is considered likely to be hit (a clearing price at the reserve price) while another region's reserve price is not. This would in turn likely lead to greater participation and demand in the other regional auctions, likely leading to higher auction clearing prices. On the other hand, if each region's reserve price is comfortably below the expected market price of allowances, different reserve prices shouldn't create problems for the market, but would increase the complexity of participating in multiple regional auctions.

3.2.6 Unsold allowances

Summary of issue. Decisions by jurisdictions about what to do with any unsold allowances may affect the level of the emissions cap if jurisdictions have provisions for retiring unsold allowances. This feature is therefore a "core design issue" as discussed in section 4 below, and should be treated as a fundamental program design element, rather than as an auction design issue.

3.2.7 Notice of auctions

Summary of issue. Regional differences in the timing and content of auction notices could have two types of effects on the markets. First, these differences would add complexity for bidders participating in multiple regional auctions, as they attempt to track different auction procedures. Second, uncoordinated release of market information through auction notices increases the potential for one region's auction information to affect participation or bids in the other regional auctions. A standard set of information to be released (e.g., number of allowances to be sold) and standardized timing of announcements would both facilitate participation in the regional auctions and minimize the potential for unanticipated information disclosures to affect auctions in other regions.

3.2.8 Monitoring

Summary of issue. As with emissions monitoring and reporting, it is crucial that each region have confidence that auctions in all regional linked programs are properly administered and competitive. This requires monitoring of auction administration and bidder behavior to ensure that auctions are fairly administered and free of collusion or market manipulation.

3.2.9 Communication of auction results

Summary of issue. As with auction notices, uncoordinated release of auction results could increase complexity for participants trying to follow multiple regional markets, and could influence the results of subsequent auctions. Auction results from one region that are released close in time to (e.g., a few days before) another region's auction could affect the results of the later auction. In addition, differences in the type of auction results information that is made public could affect market participation and bidder behavior. For example, differences in the amount of information that is disclosed about bids and bidders might shift bidders away from an auction that disclosed more information to an auction that disclosed less. Different levels of information disclosure among regional auctions could provide information about bidders in another region's auction that wouldn't otherwise be public, which could impact bidder behavior in the other auctions. As with auction notices, compatible procedures for the release of auction results could facilitate participation in regional auctions and minimize the potential for one region's auction to affect another's results.

3.2.10 Administrative processes

Summary of issue. Even minor process requirements (e.g., how qualification applications are submitted, how results are communicated) can create barriers to participation if procedures differ significantly across multiple regional programs or jurisdictions. If these administrative procedures are not decided jointly, there will inevitably be different procedures for each auction, which could be confusing for participants. This could reduce auction participation, especially by smaller organizations.

Recommendation. The allowance market would best be served by coordination between the regions on auction structure and format, auction rules and procedures, and timing. However, each regional program must weigh its own priorities in designing its auction. Coordination is complicated by differences in status—RGGI is already auctioning allowances while the other two regions are currently developing their auction designs, rules, and procedures. The regions should aim to minimize differences in auction design: WCI and the Midwest Accord should consider linking as one of the factors to weigh in designing their auctions, evaluate whether RGGI auction design elements might work for their regional programs, and raise any suggested modifications to RGGI; and RGGI states should consider any suggested

modifications for RGGI auctions. If the regions decide to pursue different paths on auction design, the regions should review any design differences that arise to determine potential effects on a linked market.

4. Core Design Issues and Recommendations

Core cap-and-trade design elements define the emissions reductions that will be achieved and significantly affect the price of allowances. Core design elements define the regulated entities, potentially affecting competitiveness among regulated entities and between regulated and unregulated entities, and determine how allowances are distributed and what flexibility mechanisms may be utilized for compliance. Differences in core design elements between regional programs do not pose technical barriers to linking, but they may have impacts on the functioning of the market and will certainly have policy impacts.

In general, linking allows the regions to ensure that the lowest-cost reductions are achieved across the jurisdictions, decreasing the overall cost of compliance for regulated entities. In addition, by harmonizing the price of allowances across regions, linking can alleviate potential competitiveness concerns caused by regulated entities facing a different cost of carbon than a competitor in a different region.

4.1 Design elements that influence price (e.g., emissions cap, offset limits, flexibility mechanisms)

Summary of issue. Allowance prices are a function of a number of policy and non-policy factors, including the level of the emissions cap, quantitative and geographic limits on offsets, marginal costs of emissions reductions among regulated emissions sources, economic activity, weather (heating and cooling demand), relative fuel prices, and other factors. Differences in allowance prices between regional programs prior to linking will equilibrate at a single new price once the programs are linked. This change in allowance price will affect the flow of investment and allowances between regions and the location of emissions reductions. With linking, a regional program that starts out with a higher allowance price will see its price drop as the price equilibrates. This could lead to a shift in emissions reductions out of the region, with investment in emissions-reducing activities likewise flowing out of the region, and reduced impacts on energy consumers. A region that starts out with a lower allowance price will see its price rise as the price equilibrates. This could lead to more in-region emissions reductions and more investment flowing into the region, as well as greater impacts on energy consumers. These potential distributional issues will have to be fully evaluated prior to linking. However, while there will likely be shifts in activity among the regions, a larger linked program will be able to achieve the combined emissions reductions of the three individual regional programs more efficiently at a lower cost, and should reduce potential overall competitiveness concerns by standardizing allowance price across the regions.

Recommendation. The projected impact of linking on allowance price, allowance flows, and emissions reductions by region and sector should be included in a study of the potential linked market so that these dynamics can be better understood. (See section 5.2.1.)

4.2 Scope of coverage

Summary of issue. Differences in sectoral coverage between the regional programs raise potential questions of competitiveness for regulated entities under a greenhouse gas cap-and-trade program competing with entities that are not regulated. However, these issues exist whether or not the programs link. Linking could minimize potential competitiveness issues if a regulated entity faces a lower allowance price after linking,

but could exacerbate potential competitiveness issues if a program's allowance price goes up as a result of linking.

Recommendation. Competitiveness issues are likely to be addressed by each regional program through its allocation provisions. The extent to which linking is expected to lessen or exacerbate potential competitiveness concerns should be included in a study of the impacts of linking programs. (See section 5.2.1.)

4.3 Flexibility mechanisms (e.g., allowance borrowing, offsets, offset price triggers)

Summary of issue. When programs link, flexibility mechanisms in one program's design can affect the supply of allowances in the other linked programs. RGGI includes the potential to expand the quantitative limit and geographic scope for offsets if a price trigger is met and sustained. The Midwest Accord allows limited borrowing and a price-triggered allowance reserve. Each of these mechanisms, if used, would allow more compliance units into the linked market. Linking has the potential to make these mechanisms more likely to be used if, for example, it were to increase RGGI prices enough to hit the offset price trigger, or to raise demand for borrowed allowances in the Midwest.

Recommendation. The projected impact of linking on the use of flexibility mechanisms should be included in a study of the potential linked market. (See section 5.2.1.)

4.4 Allowance allocation

Summary of issue. Different approaches to allowance allocation could raise potential concerns for each of the regional programs. First, differing allocation approaches could affect the relative competitiveness of regulated entities in different programs, but this issue exists whether or not the regional programs decide to link. In some cases, allocation may be used as a tool to address potential competitiveness concerns that could also be lessened by linking. By ensuring that regulated entities in multiple regions face the same allowance price, linking may reduce the need for some free allocations to certain entities or sectors.

Second, to the extent that regional programs auction allowances, linking may raise concerns regarding the flows of auction proceeds between jurisdictions. A region that starts with a lower allowance price prior to linking will likely see an increase in allowance price and impacts on energy consumers, but will also realize an increase in auction proceeds that can be reinvested in the regional economy. Conversely, a region that starts with a higher allowance price prior to linking will likely see a lower allowance price and reduced impacts on energy consumers, but also a reduction in auction proceeds for reinvestment in the regional economy.

Third, if a region allocates a large number of allowances for free, regional differences in allowance allocation might reduce overall market efficiency and liquidity and could result in market volatility. While there are reasons (e.g., competitiveness concerns) that program designers may choose to allocate allowances for free, free allocation is less economically efficient than an auction because it does not ensure that allowances go to the entity that values the allowances most. Free allocation can reduce allowance market liquidity because allowance recipients may not participate in the allowance market unless they need to procure additional allowances. On the other hand, allowances allocated freely to non-covered entities (e.g., ratepayers, industries affected by higher energy prices, or public funds for low-carbon energy investment)

may enter the secondary market quickly. Free allocation can also introduce volatility into the market if participants that receive free allowances come to the market toward the end of a compliance period after realizing they hold too few allowances.

Recommendation. First, linking may provide an opportunity to lessen potential competitiveness concerns, which may facilitate a different allocation approach. The regional programs should evaluate whether there are shared allocation goals across the three programs that may be problematic for any region to undertake on its own, but that might be feasible if the regions coordinated allocation approaches. For example, if the regions believe that some level of auctioning is desirable but problematic if other regions are allocating allowances for free, they might decide to agree on some minimum level of auctioning. A study of the potential linked market should consider the effect of linking on auction proceeds in programs with divergent initial price levels, and the market implications of linking a program that freely allocates a significant number of allowances with one that does not. (See section 5.2.1.)

5. Conclusions and Recommendations

Linking the three regional cap-and-trade programs should increase the efficiency and robustness of the individual regional allowance markets and achieve emissions reductions at a lower overall cost. Even in the absence of a full market link, harmonizing administrative systems could offer significant benefits to the jurisdictions administering cap-and-trade programs and to market participants, and such steps could be taken today to facilitate future linking. Further analysis is necessary to facilitate a decision about formally linking the three programs through allowance reciprocity. Therefore, recognizing that each region (and each jurisdiction within the regions) has its own priorities to balance, the regional programs should move in the direction of harmonizing program design elements and administrative systems where appropriate prior to a decision about linking programs, and jointly engage in a full evaluation of the potential impacts of linking programs, including an economic analysis. Two proposed areas for coordination among the three programs are suggested below.

5.1 Work toward harmonizing administrative systems

Harmonizing systems for emissions monitoring and reporting, emissions and allowance tracking, and auctioning of allowances could provide administrative efficiencies for jurisdictions and market participants. Regions could work toward harmonization of administrative systems to the extent possible and identify areas in which they cannot. This step could be taken whether or not the regions decide to formally link programs through acceptance each other's allowances for compliance. Coordination of the following could be a first step:

5.1.1 Emissions monitoring and reporting protocols

Lack of comparable rigor in emissions monitoring and reporting could jeopardize the environmental integrity of a linked market. While protocols for monitoring and reporting emissions in the electricity sector are well established, WCI and the Midwest will be developing monitoring and reporting protocols for other covered sectors. In the short term, RGGI and Midwest Accord jurisdictions should review protocols currently under development in WCI and identify any concerns, and the regions should coordinate with each other as program development efforts continue.

5.1.2 Emissions and allowance tracking systems

Jurisdictions in WCI and the Midwest Accord should evaluate the emissions and allowance tracking system used by RGGI to determine whether their regions could gain significant administrative efficiencies for participating jurisdictions and regulated entities by building on RGGI's approach, as well as savings in costs and development time. Any suggested modifications or improvements to the RGGI system should be raised for consideration by RGGI participating states.

5.1.3 Auction design, procedures, and platform

Lack of coordination on auction design, rules, platform, and timing could negatively affect the operation of linked emissions markets. The Midwest Accord and WCI should review RGGI's auction design and implementation, evaluate whether these approaches might work for their regions, and raise any concerns or suggestions to RGGI so that all efforts can be made to align auction design and procedures as much as possible. Implementation of a single common auction for the three programs would be an option in the future and might eventually be considered, a single auction is not recommended at this time.

5.2 Evaluate the impacts of linking programs

To the extent that program design elements and administrative systems can be harmonized without compromising other regional goals, the regions should do so, as it will facilitate future linking. In order to determine whether to link programs through acceptance of each other's allowances for compliance with regional caps, the regions should explore a variety of areas needing further evaluation:

5.2.1 Economic study of linked programs and allowance market

Linking the three regional cap-and-trade programs would effectively form one larger cap-and-trade program and a single accompanying allowance market. The emissions cap of this linked market would be the aggregate of the three regional caps; the offset limit would be the aggregate of the three regional limits; and the potential use of flexibility mechanisms would depend on the linked program allowance price. The three regional programs should undertake a study to determine the aggregate design elements that would result from linking the three programs and the projected impacts of linking, including changes in allowance prices, the distribution of emissions reductions (by region, regulated sector, and through offsets), utilization of flexibility mechanisms present in one or more of the linked programs, and allowance and investment flows. The potential for linking to lessen or exacerbate potential competitiveness concerns for certain regulated entities should also be evaluated.

5.2.2 Process and legal questions

The regions should also explore the process by which regions might agree to link, the form such an agreement might take, and what domestic or international legal issues should be considered in evaluating linking.

The Georgetown Climate Center is grateful to the Energy Foundation for its support of discussions among states and provinces developing greenhouse gas emissions trading programs, and to our core funders, the Rockefeller Brothers Fund and the Emily Hall Tremaine Foundation.

Please contact Kate Zyla (zyla@law.georgetown.edu) with any questions regarding this report.