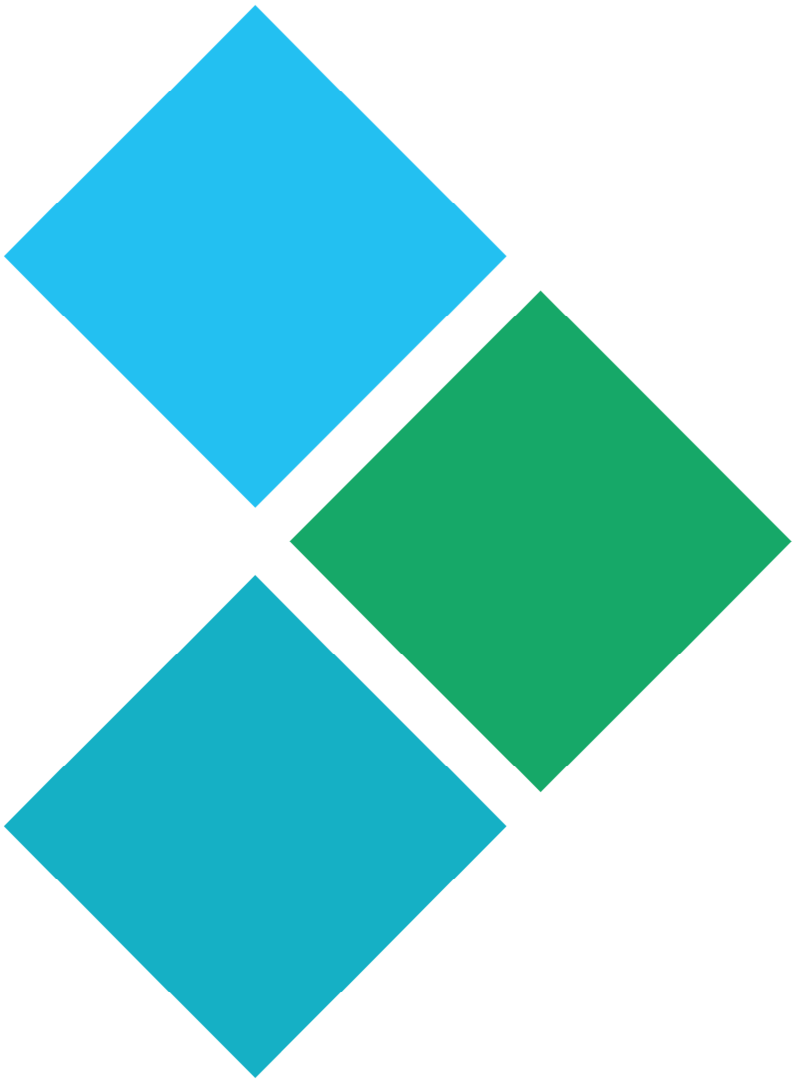
CARBON ROADMAP

TASK FORCE REPORT

December 2015



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ABOUT SWITCH

SWITCH, the Alliance for a Green Economy in Quebec, seeks to accelerate the shift towards a green economy in order to build an innovative, resilient and economically competitive society that balances social equality, the environment and quality of life. The Alliance works towards clear social, political and economic vision and leadership, in the public, private, cooperative/mutual, non-profit and civil society sectors.

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BACKGROUND

In spring 2015, a few months before the Paris Climate Change Conference (COP21), SWITCH, the Alliance for a green economy in Quebec, launched two new task forces. The first was responsible for determining the best measures to accelerate Quebec's transition toward green technology and energy by focusing on reducing oil consumption in the transportation and land use sectors (**Energy Transition Task Force**). The second focused on the potential expansion of the Quebec-California carbon market (QC-CA market) and issues relating to border carbon adjustment (BCA) (**Carbon Roadmap Task Force**).

This is the Carbon Roadmap Task Force Report, as approved by the SWITCH Steering Committee in November 2015. Task Force members got together for three two-hour meetings between August and October 2015. They were joined by two guest experts for the second session.[1]

The Task Force received financial support from the European Union to conduct its studies.

Considering the growth and expansion of the Quebec-California carbon market while preventing carbon leakage

The Task Force looked into the possibility of expanding the Quebec carbon market, linked to that of California since 2014, to other areas in North America and around the world. It gauged the potential benefits of and opportunities for expansion, particularly with respect to the European Union Emissions Trading System (EU ETS). The Task Force also sought to determine the best ways to prevent carbon leakage from areas or markets in which carbon emissions are regulated to those where they are not.

Guiding questions submitted to the Task Force

Task Force discussions were centered on the following questions:

<u>QC-CA market expansion</u>

- Do participants feel that efforts should be made to consolidate and expand the QC-CA market?

[1]Andrei Marcu, senior advisor and head of the Carbon Market Forum at the Center for European Policy Studies, and Jean-Yves Benoît, head of carbon markets at the Government of Quebec and co-chair of the International Climate Action Partnership – ICAP.

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- If so, what should be prioritized: (a) facilitating Ontario's entry into the QC-CA market, (b) working on linking Regional Greenhouse Gaz Initiative (RGGI) and the QC-CA market, (c) expanding the QC-CA market to other U.S. states and Canadian provinces, (d) calling for the start of informal discussions that could lead to linking the QC-CA market with a reformed EU ETS, or (e) calling for a global carbon market under common or compatible rules?

- What key players could do to get things rolling? Do participants see themselves playing a role, individually or collectively, in encouraging the consolidation and expansion of carbon markets, and if so, what could this role be?

<u>BCA measures</u>

- Are participants concerned about potential leakage toward jurisdictions (including U.S. states and Canadian provinces) that have not established *equivalent* GHG reduction policies?

- If so, which jurisdictions and what measures would be most appropriate to put in place in such cases, if any? Do current free trade agreement talks(Canada-EU, Asia-Pacific) seem to be in favor of or against the introduction of BCA?

- Do participants believe they have a role to play, individually or collectively, in the implementation of BCA, if any? If so, what could this role be?

The following section presents the main elements that guided discussions on the potential expansion of the QC-CA market. The section provides a summary of Task Force discussions and presents SWITCH's recommendations.

The final section of the report presents the main elements that guided discussions on the possibility of establishing BCA measures in the QC-CA market. It also concludes with a summary of Task Force discussions and presents SWITCH's recommendations.

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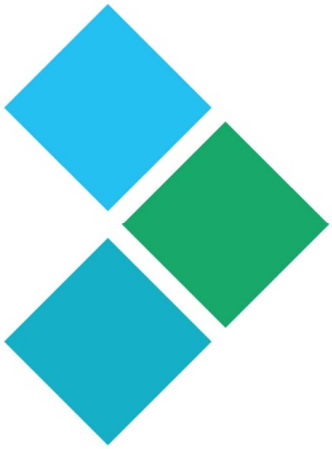

I- CONSOLIDATING AND LINKING CARBON MARKETS

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I- CONSOLIDATING AND LINKING CARBON MARKETS

This section starts off with an overview of the QC-CA carbon market and examines the rapid growth of carbon markets around the world. The section provides a summary of Task Force discussions and presents SWITCH's recommendations for public decision makers.

1.1 Important aspects of the Quebec-California carbon market

In North America, Quebec and California have had linked cap-and-trade systems since January 2014. The two systems share a common set of rules developed over the years under the Western Climate Initiative (WCI). The Quebec and California cap-and-trade systems regulate about 85% of emissions in both jurisdictions, including fossil fuel distribution. Ontario and Manitoba recently announced its intention of joining Quebec and California, and the states of Washington and New York are officially considering it as well.

The two governments have different short-term goals that are converging over time. Quebec wants its emissions to decline to 20% below 1990 levels by 2020, while California is aiming for its emissions to drop to 1990 levels by 2020. Both Quebec and California hope to lower their emissions to at least 80% below 1990 levels by 2050 and are setting very similar targets for 2030, which are 37.5% for Quebec and 40% for California.

Beyond the QC-CA market, the situation in North America is changing very quickly:

- Ontario intends to launch its cap-and-trade program in 2017, before linking to Quebec and California in 2018. Proposed design elements of Ontario's program are undergoing consultation until early 2016.

- Manitoba has very recently announced it will implement a cap-and-trade program for large emitters, linked to the Quebec-California carbon market.

- British Columbia is drafting its Climate Leadership Plan, to be released in spring 2016. Once complete, the strategy will inform pathways to help BC reach its 2020 target and define post-2020 targets and measures. In late 2014, BC adopted an emissions intensity–based approach for liquefied natural gas (LNG) facilities, largely modeled after Alberta's climate regulation and compliance measures for large final emitters.

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- Yukon, and the Northwest Territories are currently developing their post-2020 climate strategies and may decide to join a carbon market.

- Mexico announced its intention to develop a national carbon market, with the intention to link to the WCI by 2017.

North America also has the Regional Greenhouse Gas Initiative (RGGI), the continent's oldest cap-and-trade system, which regulates power sector emissions of nine northeastern U.S. states (CO_2 only). Since program outset, nearly all allowances are auctioned. RGGI states have committed to reducing the GHG emissions of the regulated energy sector to more than 50% below 2005 levels by 2020.

The Obama administration's Clean Power Plan (CPP), finalized in August 2015 and taking effect in 2022, mandates the reduction of greenhouse gas emissions from existing US power plants. The important regulatory action and state guidance allowing for multi-state compliance flexibility is driving and will continue to drive states to consider establishing or joining cap-and-trade systems (e.g., RGGI, QC-CA) to help meet CPP compliance at least cost.

1.2 Growth of carbon market around the world

Worldwide, there are now 17 cap-and-trade systems in force across 4 continents, covering 35 countries, 12 states or provinces, and 7 cities. Together, these areas produce about 40% of the world's GDP (ICAP 2015). There are active cap-and-trade systems in Europe, North America (RGGI, QC-CA market), China (city/regional pilot programs), Greater Tokyo, Kazakhstan, Switzerland, and New Zealand.

In Asia, the seven Chinese pilot programs are slated to merge into a single national system by 2017. Emerging economies like Mexico and Brazil are also looking at cap-and-trade systems as options for developing their climate policies. Map 1 shows the various active or planned cap-and-trade systems around the world.

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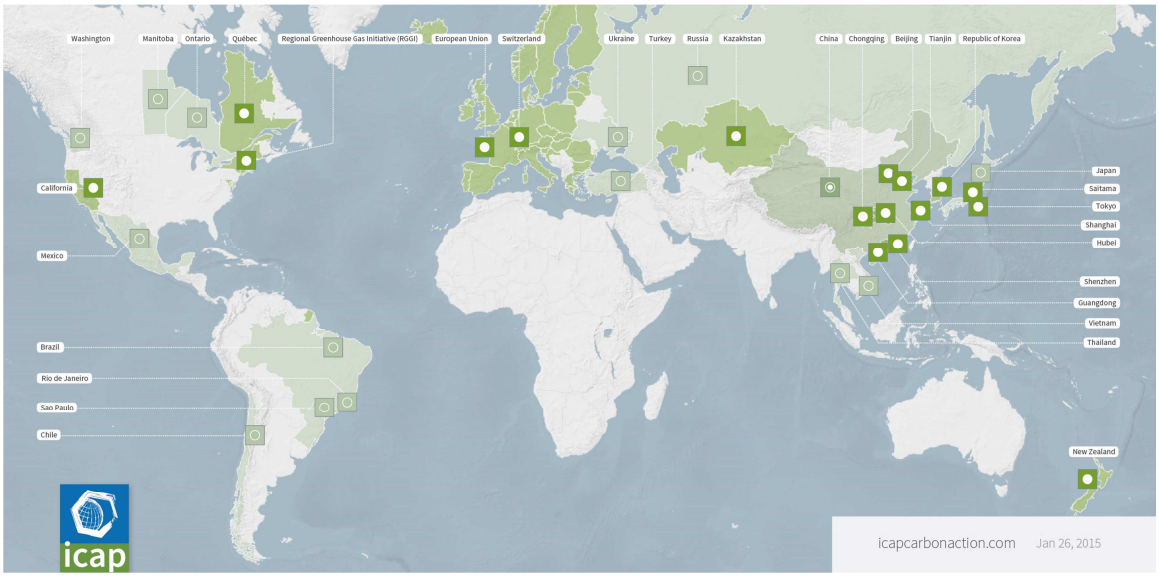
MAP 1 – Cap-and-trade systems around the world. ICAP 2015



In Europe, the EU ETS has now entered Phase 3 (2013–2020). It operates in all 28 EU Member States as well as in Liechtenstein, Iceland, and Norway. The ETS regulates about 45% of EU GHG emissions, mostly those relating to power generation and consumption.

Authorities have adopted the EU's climate and energy framework for 2021–2030 in which the main objective is for industries to reduce domestic GHG emissions by at least 40%, compared to 1990 levels, by 2030. This represents a 43% reduction, compared to 2005 levels, in sectors covered by the EU ETS and a 30% reduction in those not covered.

It is important to remember that the EU ETS has been weakened by surplus allowances, which caused prices to collapse. Despite major changes made to the system in Phase 3, there are still an estimated 900 million surplus allowances on the market.

A recent agreement within the EU calls for the imminent creation of a Market Stability Reserve (MSR) for surplus allowances. The MSR would make it possible to adjust the allowance supply in response to major fluctuations in demand. It is difficult to say how much of an impact this measure will have when it takes effect on January 1, 2019.

European authorities have stressed that emissions trading will remain the main tool used to meet future emission reduction targets.

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International climate negotiations. Emissions trading between States may be specifically recognized under the Paris Agreement currently being negotiated, accompanied by general guidelines to ensure its integrity and some form of unit equivalency. Other options still on the table would ignore emissions trading and market mechanisms.

1.3 Discussion highlights

The Task Force considered the following international elements in its discussions:

- The global carbon market environment is changing rapidly with the emergence of many independent regional and national markets with more or less compatible rules of operation.

- As it stands, the draft for the Paris Agreement suggests that there may be no mention of market or flexibility mechanisms as GHG reduction tools. Failing to adopt market provisions in the new Agreement would be problematic for numerous reasons, as it would leave existing and proposed ETS without clear international guidance in terms of MRV and mutual recognition of reduction units, slowing down efforts to link them together.

Many participants indicate that, from the point of view of investors seeking to comply with or profit from the carbon market, it is crucial that risks be minimized by ensuring the continued existence of carbon markets and the establishment of predictable rules. Such a business climate makes it possible to amortize projects over a number of years and reassure lenders and investors. Many participants therefore hope that a clear message will be sent confirming that the QC-CA market is here to stay, and that the rules under which it will be operating as of 2021 are clarified as soon as possible.

Many also notice that a lot of market intermediaries have a rather superficial understanding of the cap-and-trade system and can therefore be overly cautious when analyzing files from companies looking to capitalize on the business development opportunities carbon markets present. What makes this situation particularly concerning is that it seems to apply not only to private sector intermediaries, but to public economic development organizations such as governmental investment banks and venture capital funds as well.

A number of participants also stress that any market Quebec may be interested in linking with must have clear measurement, reporting, and verification (MRV) rules. Moreover, many advocate the inclusion of an explicit reference to market and flexibility mechanisms in the Paris Agreement, as well as minimum MRV standards coming out of Paris, so as to ensure the environmental integrity of the emission reduction units traded in carbon markets.

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As for the question of what can be done to facilitate expansion of the QC-CA market, SWITCH has found that many participants are already actively advising various Ontario stakeholders as to the best ways to establish a functioning and compatible Ontario ETS alongside Québec's and Califonia's.

SWITCH also considers that, given the differences and issues with the European carbon market at the moment, conditions are not very favorable to opening discussions aimed at linking the North American and European carbon markets. However, SWITCH does believe that, in the long run, all carbon markets should be linked, including emerging markets like those in China and Mexico.

In summary

Participants in general would like to see carbon markets spread so all stakeholders are subject to equivalent rules and costs.

The Paris Agreement must indicate that market and flexibility mechanisms will be allowed and encouraged and send a clear message that they will continue into the future. Basic MRV rules must also be proposed.

With respect to the expansion of North American carbon markets, participants have agreed that facilitating the entry of Ontario stakeholders into the QC-CA market is a priority. This priority does not exclude participants' interest in seeing other North American jurisdictions join the QC-CA market, nor wishing that, over time, regional carbon markets eventually converge into a single global market.

1.4 SWITCH recommendations

RECOMMENDATION 1 – Place of market mechanisms in the Paris Agreement

As it stands, the draft for the Paris Agreement suggests that there may be no mention of market or flexibility mechanisms as GHG reduction tools. This could send a negative message with regard to the future of existing carbon markets, resulting in uncertainty and greater investment risks. The International Emissions Trading Association (IETA) has prepared a series of recommendations as to how market mechanisms could be included in the text of the Paris Agreement. SWITCH has read IETA's proposals[2] and endorsed them.[3]

[2] https://ieta.memberclicks.net/assets/UNFCCC/COP21/worlds%20ets%20and%20indcs%20briefing_nov%202015.pdf

[3] https://ieta.memberclicks.net/assets/PressReleases/2015/ieta%20press%20release%20business%20groups%20on%20markets.pdf

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SWITCH recommends that the governments of Quebec and Canada advocate the recognition of flexibility mechanisms in the Paris Agreement, supporting IETA's requests in this regard.

RECOMMENDATION 2 – Statement from the Government of Quebec as to how the cap-and-trade system will work beyond 2020

From the point of view of investors seeking to comply with or profit from the carbon market, it is crucial that risks be minimized by ensuring the continued existence of carbon markets. Such a business climate makes it possible to amortize projects over a number of years and reassure lenders and investors. The Government of Quebec has not yet announced how the cap-and-trade system will work beyond 2020, or how allowances will be allocated to major emitters.

SWITCH recommends that the Government of Quebec make a clear statement indicating that the Quebec carbon market (cap-and-trade system) will continue beyond 2020 and will be one of the key tools for reducing GHG emissions.

SWITCH requests that the post-2020 regulations be established as soon as possible, especially with respect to reduction requirements for major emitters and the allowance allocation formula for 2021–2030.

SWITCH reiterates its calls for the broadening of existing offset protocols and for new protocols to be developed, to the benefit of Quebec businesses. SWITCH also hopes the Quebec cap-and-trade system will recognize carbon offsets from outside its borders in order to promote the growth of Quebec businesses.

RECOMMENDATION 3 – Facilitating Ontario's entry into the Quebec-California carbon market

Many participants are already actively advising various Ontario stakeholders as to the best ways to join the QC-CA market while guarding against carbon leakage and competitiveness issues.

SWITCH recommends that the Government of Quebec and other stakeholders continue their efforts to facilitate Ontario's entry into the QC-CA market. SWITCH continues to encourage the entry of new partners in the QC-CA market.

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RECOMMENDATION 4 – Making it easier for financial intermediaries to understand how the carbon market works and how it affects businesses.

SWITCH believes that many market intermediaries have a rather superficial understanding of the cap-and-trade system and can therefore be overly cautious when analyzing files from companies looking to capitalize on the business development opportunities carbon markets present. What makes this situation particularly concerning is that it seems to apply not only to private sector intermediaries, but to public economic development organizations as well.

SWITCH recommends that the Government of Quebec, through the Financial Markets Authority, and in partnership with the Quebec finance cluster, makes available to financial institutions and industry professionals, tools - including awareness and training activities - so they can take full advantage of the introduction of the carbon market and develop products and services serving the needs of Quebec businesses.

RECOMMENDATION 5 - Toward converging carbon markets

SWITCH considers that, given the differences and issues with the European carbon market at the moment, conditions are not readily conducive to linking the North American and European carbon markets. However, SWITCH does believe that, in the long run, all carbon markets should be linked, including emerging markets like those in China and Mexico.

SWITCH recommends that Quebec and its Californian and Ontarian partners establish agreements with the Mexico and China emerging carbon markets and with the EU ETS and with a view to the convergence of market rules.

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II- GUARDING AGAINST CARBON LEAKAGE: BORDER CARBON ADJUSTMENT

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II- GUARDING AGAINST CARBON LEAKAGE: BORDER CARBON ADJUSTMENT

This section describes the issue of carbon leakage from areas where GHG emitters are subject to reduction policies to areas where they are not. It looks at several planned or established BCA measures and addresses the compatibility issues these measures may have with World Trade Organization (WTO) rules. Given that less time was spent on this issue, any observations or recommendations made by the Task Force or SWITCH in this section are to be considered preliminary.

2.1 Border carbon adjustment: definition

Border carbon adjustment (BCA) is a response to the risk of carbon leakage from jurisdictions that have adopted carbon-reduction policies to those that have not.

Carbon leakage can occur when direct and indirect costs arising from asymmetrical climate policies have a material impact on competitiveness. As a result, industrial production and new investments are moved outside regulated regions together with any associated GHG emissions (IETA 2015).

BCA can be implemented as a border tax on goods emitting GHGs when manufactured. Such taxes are levied on imports from countries with no equivalent domestic GHG emission mitigation policies. BCA can also be established through permits and allowances that importers purchase instead of being taxed at the border.

The risk of carbon leakage is not the same for all industrial sectors. The risk is greater when carbon costs are high and international competition is fierce. Two indicators are generally used, one measuring carbon cost and the other trade intensity. The most vulnerable sectors, known collectively as energy-intensive, trade-exposed (EITE) industries, include the iron and steel, cement, refining, and aluminum sectors (Branger and Quirion, 2015).

Although the topic has been discussed at length, evidence of leakage is scant. Most ex ante modeling studies point to leakage rates of 5–20% (when no mitigation efforts are made), while ex post econometric studies have not revealed any statistically significant evidence of leakage (Branger and Quirion 2015).

One of the most common cap-and-trade practices to insulate EITE sectors from competition not subject to equivalent policies is to give away allowances. This

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practice is widely used in the QC-CA market.

> BCA has an uncertain status under trade law. If established with the purpose of protecting the competitiveness of domestic businesses, it may be challenged under WTO rules, but if designed to avoid the displacement of carbon emissions from one market to another, it could be deemed acceptable under existing trade rules (Entwined 2015).

California currently has a BCA clause requiring electricity importers and producers to hold sufficient allowances to cover the compliance period. These companies (First Jurisdictional Deliverers" of electricity into the California market) are not compensated for carbon compliance costs at the border. California regulators are also considering the possibility of introducing a similar measure for the cement sector, with the intention of extending this (to-be-determined) BCA on cement imports to other sectors during California's third compliance period starting in 2018.

> BCA has been considered in the EU, with France proposing a border carbon tax on imported goods in 2010, and in the U.S., with the Waxman-Markey Bill of 2009. Both initiatives were eventually abandoned.

Many technical points must be considered before BCA can be implemented:

- What industrial sectors should be covered? What sectors are most susceptible to leakage?
- What countries should have their exports subject to BCA? How can countries with no equivalent carbon-reduction policies be identified? Should exceptions be made for less developed countries?
- How should the carbon content of imports be measured? Based on the exporter's average emissions, the home country's average emissions or emission reports, or benchmarks based on the best available technology (BAT)? Should indirect emissions (e.g., electricity used to produce imported goods) be included?
- What legal form should it take? A tax or an obligation to surrender allowances?
- What level should the adjustment be set at? How high should the border tax be, or how expensive should the allowances importers will have to buy be?
- What about revenues? Should border tax or allowance revenues

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be reinvested in the importing country, returned to the exporting country, or transferred to an international body?

2.2 Discussion highlights

Participants recognize that any BCA measure would likely be challenged at the WTO. However, many believe WTO rules could very well allow BCA if the policy does not discriminate in favor of goods produced domestically and/or is not designed to protect domestic industries. A well-designed BCA measure aimed at preventing the delocalization of carbon emissions should therefore very well survive being contested via the WTO dispute settlement mechanism.

Participants nonetheless note that developing and establishing a BCA policy has been a challenge, namely due to how difficult it can be to determine the origin of covered goods and products. The trans-shipment tactics employed by exporters can make it hard to trace goods back to their country of origin through production and value chains. One way of getting around this issue would be to develop public procurement rules stipulating carbon content objectives. Sellers, whether domestic or not, would have to meet maximum carbon content requirements for all products, goods, materials, or processes sold in a given market.

Participants are also curious as to how the new Trans-Pacific Partnership (TPP) will affect, if at all, the ability to implement BCA measures in Quebec and Canada. They have also discussed the Chinese government's announcement that it will be establishing a national carbon market as of 2017, as well as the ongoing proceedings at the WTO, where China is seeking market economy status. Participants wonder how these changes will affect the competitiveness of businesses subject to carbon constraints in Quebec, Canada, and North America in relation to China in its own markets.

Whatever the case may be, participants consider BCA measures to be one of a number of options for preventing leakage, among a series of measures aimed at standardizing the rules of the game for everyone. Many stakeholders believe BCA measures to be temporary policies, pending a much broader harmonization of the rules.

In summary

Participants recognize that, as carbon markets develop around the world, BCA measures are getting increased attention. Considering the carbon leakage and competitiveness issues that can arise due to the presence of carbon markets in various North American states and provinces—and the lack of such constraints in other jurisdictions—participants feel that further analysis is required and that the situation should be closely monitored.

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Beyond how complex they can be to implement, BCA measures are seen as fundamentally defensive tools to be introduced for the sole purpose of guarding against carbon leakage when exporting countries have no equivalent constraints in place. These measures can also be used to pressure States that have not yet established carbon constraints. In any case, they would only be introduced if it was felt that they were absolutely necessary.

Participants think it is important to recognize the decisions countries have made and accept some degree of flexibility regarding the methods used so long as carbon constraints are effectively equivalent. Accordingly, participants hope for flexible systems that are open to one another, providing public and private stakeholders access to reductions made elsewhere in the world. Participants stress the importance of market access for imported goods, and of clarifying the conditions for this access.

Lastly, SWITCH believe that good measurement, reporting and verification (MRV) mechanisms are key elements that can increase compatibility among different policy instruments countries may choose to address carbon issues. MRVs are indeed an essential element to support transparency and accountability, as well as support system linkages and equivalency among cap-and-trade, carbon pricing, regulatory approaches and voluntary standards, in line with the broad assumption that what is measured is managed.

2.3 SWITCH Recommendation

RECOMMANDATION 6 - Closely monitoring competitiveness and carbon leakage

SWITCH believes that, due to the increasing diversity of carbon constraint measures around the world, it is important to consider the carbon leakage and competitiveness issues that can arise between businesses subject to different rules. SWITCH finds that few studies have been conducted in Quebec in this regard.

SWITCH recommends that competitiveness and carbon leakage be closely monitored due to the emerging patchwork of carbon constraint policies around the world. This monitoring should be conducted with the Quebec, California, and Ontario carbon market in mind.

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