

**Border Carbon Adjustments in Support of Domestic Climate Policies:
Explaining the Gap Between Theory and Practice**

by

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Abstract

A growing number of scholars, environmentalists, politicians, and business leaders have recommended border carbon adjustments (BCAs) to support domestic climate policies. BCAs can levy a domestic carbon price on imports. By extending domestic policies beyond a jurisdiction's boundaries, BCAs can put domestic and foreign industries on a level playing field, counter carbon leakage, and incentivize other jurisdictions to take climate action. In theory, BCAs offer the promise of environmental, economic, and political benefits. However, despite their potentially substantial benefits and backing from prominent leaders, BCAs are largely absent in practice. Although an increasing number of carbon-pricing policies have been adopted throughout the world, very few examples of BCAs exist, and so far none have been implemented at a general scale in any jurisdiction.

In order to explain this puzzle and investigate the conditions under which policy-makers do, or do not, adopt and implement BCAs, this research empirically tests a series of hypotheses using four case studies of experiences with BCAs in the European Union (EU) and in California. The case studies comprise the inclusion of international flights in the EU's cap-and-trade system, stationary installations in this system, the inclusion of electricity imports in California's cap-and-trade program, and industrial facilities in this program. This research draws on information from 43 expert interviews and a wide range of published materials, including quantitative data.

The research finds several barriers that prevent the adoption and implementation of BCAs in practice. Policy-makers are likely to meet domestic political opposition to BCAs, may run into opposition from other governments, and may encounter concerns about the circumvention of BCAs. In fact, domestic industry stakeholders overwhelmingly oppose BCAs since they prefer alternative measures, such as free allocation of emission allowances. They also oppose because BCAs may result in a stakeholder's increased exposure to carbon pricing, and export-oriented industries fear trade war and retaliation from other jurisdictions. Therefore, the circumstances in which BCAs may be implemented successfully, and thus the scope for applying BCAs in practice, appear to be more narrow than acknowledged in the literature.

Lay Summary

Many scholars, environmentalists, politicians, and business leaders recommend “border carbon adjustments” (BCAs), a type of government policy that helps reduce greenhouse gas emissions. In theory, BCAs have several environmental, economic, and political benefits, but BCAs are rare in practice. Drawing on 43 expert interviews and other materials, this research investigates this contradiction through the analysis of four cases in which BCAs have been considered, and sometimes applied, in the European Union and California. This study finds that governments often face local and foreign opposition to BCAs. Governments also struggle to prevent companies from bypassing the policy. Most companies prefer other policies rather than BCAs. For these reasons, governments do not often apply BCAs and use other policies instead. This study contributes to the development of effective government policy to address climate change.

Preface

This dissertation is original, unpublished, independent work by the author, Stefan U. Pauer. The University of British Columbia's Behavioural Research Ethics Board approved the research for this project (certificate number: H14-02794). Parts of chapter 5 have been published as follows: Pauer, Stefan U. "Including Electricity Imports in California's Cap-and-Trade Program: A Case Study of a Border Carbon Adjustment in Practice" (2018) 31:10 The Electricity Journal 39. Parts of chapters 1, 2, and 7 have been published as follows: Pauer, Stefan U. "Border Carbon Adjustments in Support of Domestic Climate Policies: Explaining the Gap Between Theory and Practice" (2019) Smart Prosperity Institute, Working Paper 19-05. Lastly, a policy brief based on findings in chapter 7 has been published: Pauer, Stefan U. "Border Carbon Adjustments: A Policy Brief" (2019) Smart Prosperity Institute, Working Paper 19-04.

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List of Abbreviations

AB	Assembly Bill
AEA	Association of European Airlines
ARB	Air Resources Board
BCA	Border carbon adjustment
CalChamber	California Chamber of Commerce
CEFIC	European Chemical Industry Council
CEO	Chief executive officer
CEPI	Confederation of European Paper Industries
CMTA	California Manufacturers & Technology Association
CSCME	Coalition for Sustainable Cement Manufacturing & Environment
DCC	Dormant Commerce Clause
EDF	Environmental Defense Fund
EEA	European Economic Area
EITE	Energy-intensive and trade-exposed
ELFAA	European Low Fares Airline Association
ERA	European Regions Airline Association
ETS	Emissions Trading System
EU	European Union
FERC	Federal Energy Regulatory Commission
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
ICAO	International Civil Aviation Organization
IEP	Independent Energy Producers Association
LADWP	Los Angeles Department of Water and Power
LCFS	Low-carbon fuel standard
MRV	Monitoring, reporting, and verification
NGO	Environmental non-governmental organization

NRDC	Natural Resources Defense Council
PG&E	Pacific Gas and Electric
PPM	Process and production method
PUC	Public Utilities Commission
RGGI	Regional Greenhouse Gas Initiative
SB	Senate Bill
SCE	Southern California Edison
SCPPA	Southern California Public Power Authority
SDGE	San Diego Gas & Electric
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
WSPA	Western States Petroleum Association
WTO	World Trade Organization
WWF	World Wide Fund for Nature

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June 2019

Dedicated to

Oralia

&

Vanessa †

1 Introduction: The Puzzle of Border Carbon Adjustments

1.1 Context

A growing number of scholars, environmentalists, politicians, and business leaders have recommended border carbon adjustments (BCAs)¹ to support domestic climate policies, particularly market-based instruments for carbon pricing, namely carbon taxes and cap-and-trade systems. BCAs are trade measures that equalize different levels of carbon prices between trading partners. Specifically, to put domestic and foreign industries on a level playing field, BCAs levy a domestic carbon price on imported goods.² In doing so, BCAs extend such climate policies beyond the domestic domain. Correspondingly, although symmetry is not required,³ a domestic carbon price can also be rebated for exported goods to support the competitiveness of domestic producers on foreign markets.⁴ While ordinary tariffs may be based on the value of a good, BCAs are based on the amount of greenhouse gas emitted during the production of a good. For example, the charge for a tonne of cement would be based on the amount of CO₂ and other greenhouse gases emitted during its production. This way, a jurisdiction applying a symmetric BCA would levy its domestic carbon price on imports of cement and provide a rebate of the carbon price to domestically-produced cement that is destined for export.⁵

¹ Other terms used in the literature include border tax adjustments (BTAs), border adjustments (BAs), border adjustment measures (BAMs), border carbon measures (BCMs), border tax measures (BTMs), carbon border adjustments (CBAs), carbon border measures (CBMs), carbon border taxes (CBTs), and carbon tariffs.

² In principle, BCAs could also be used for trade in services. Because domestic climate policies have concentrated on reducing emissions from manufacturing industries, this dissertation focuses on BCAs for goods.

³ Gary Clyde Hufbauer, Steve Charnovitz & Jisun Kim, *Global Warming and the World Trading System* (Washington, DC: Peterson Institute for International Economics, 2009) at 39.

⁴ See e.g. Mikael Skou Andersen, “Border Adjustment With Taxes or Allowances to Level the Price of Carbon” in Mona Hymel et al, eds, *Innovation Addressing Climate Change Challenges: Market-Based Perspectives* (Cheltenham: Edward Elgar, 2018) 20; Susanne Droege, “Using Border Measures to Address Carbon Flows” (2011) 11:5 Climate Policy 1191; Michael Mehling et al, “Beat Protectionism and Emissions at a Stroke” (2018) 559 Nature 321. Unless otherwise indicated, in this dissertation the term BCA refers to measures that comprise both import charges and export rebates.

⁵ See also General Agreement on Tariffs and Trade, *Report by the Working Party on Border Tax Adjustments* (1970), GATT Doc L/3464, BISD 18S/97, which defines border adjustments in general as “any fiscal measures which put into effect, in whole or in part, the destination principle” (at para 4).

BCAs offer the promise of environmental, economic, and political benefits. In protecting the competitiveness of domestic industries relative to peers in jurisdictions with more lenient standards, these measures can avoid negative economic consequences, increase environmental benefits by countering carbon leakage,⁶ and, in doing so, build greater political support for domestic carbon pricing or regulation. What is more, depending on their design, BCAs may even incentivize other jurisdictions to implement their own climate policies or join international efforts to cut emissions.⁷

Perhaps unsurprisingly, numerous leaders have advocated the use of BCAs. Notable individuals that have called for such measures include economists and Nobel Prize winners Paul Krugman⁸ and Joseph Stiglitz,⁹ climate scientist and activist James Hansen,¹⁰ former United States (US) Secretary of Energy and Nobel Prize winner Steven Chu,¹¹ French President Emmanuel Macron,¹² former French Presidents Jacques Chirac¹³ and Nicolas Sarkozy,¹⁴ former French Prime Minister Dominique de Villepin,¹⁵ former Italian Prime

⁶ See e.g. Christoph Böhringer, Edward J Balistreri & Thomas F Rutherford, “The Role of Border Carbon Adjustment in Unilateral Climate Policy: Overview of an Energy Modeling Forum Study (EMF 29)” (2012) 34 *Energy Economics* S97.

⁷ See e.g. Tracey Epps & Andrew Green, *Reconciling Trade and Climate: How the WTO Can Help Address Climate Change* (Cheltenham: Edward Elgar, 2010).

⁸ Paul Krugman, “Building a Green Economy”, *The New York Times* (7 April 2010), online: The New York Times <<https://www.nytimes.com/>>.

⁹ Joseph E Stiglitz, “A New Agenda for Global Warming” (2006) 3:7 *The Economists’ Voice*.

¹⁰ Eric Holthaus, “The Point of No Return: Climate Change Nightmares Are Already Here”, *Rolling Stone* (5 August 2015), online: Rolling Stone <<https://www.rollingstone.com/>>; Michael Hopkin, “James Hansen: Emissions Trading Won’t Work, But My Global ‘Carbon Fee’ Will”, *The Conversation* (2 December 2015), online: The Conversation <<http://theconversation.com/>>.

¹¹ Ian Talley & Tom Barkley, “Energy Chief Says U.S. Is Open to Carbon Tariff”, *The Wall Street Journal* (18 March 2009), online: The Wall Street Journal <<https://www.wsj.com/>>; “Geht auch ohne die USA”, *Österreichischer Rundfunk* (30 November 2016), online: ORF <<https://orf.at/>>.

¹² Raquel Guerra, “Macron Vows to Put Climate ‘at the Heart of the EU Project’”, *ENDS Europe* (26 April 2019), online: ENDS Europe <<http://www.endseurope.com/>>; Jean Chemnick, “Quitting Paris? Pay a Carbon Tax, Macron Says”, *E&E News* (4 December 2018), online: E&E News <<https://www.eenews.net/>>; Neil Roberts, “France Calls for EU Carbon Floor Price and Border Tariff”, *ENDS Europe* (22 March 2018), online: ENDS Europe <<http://www.endseurope.com/>>.

¹³ Cited in Joost Pauwelyn, “Carbon Leakage Measures and Border Tax Adjustments under WTO Law” in Geert Van Calster & Denise Prévost, eds, *Research Handbook on Environment, Health and the WTO* (Cheltenham: Edward Elgar, 2013) 448 at 458.

¹⁴ Mike Szabo, “Europe Should Hit US With Carbon Tariffs for Paris Withdrawal -Sarkozy”, *Carbon Pulse* (14 November 2016), online: Carbon Pulse <<http://carbon-pulse.com/>>; “France Says EU Nations Would Back

Minister Silvio Berlusconi,¹⁶ former European Union (EU) Commissioner Günter Verheugen,¹⁷ and Michael Morris, former Chief Executive Officer (CEO) of American Electric Power.¹⁸

However, success in implementing BCAs has proven largely elusive to date. BCAs are conspicuously absent in practice – despite their backing from prominent leaders and their potentially substantial benefits. Indeed, although an increasing number of carbon-pricing policies have been adopted throughout the world,¹⁹ very few examples of BCAs exist, and so far none have been implemented at a general scale in any jurisdiction.²⁰

1.2 Research Objective

This puzzle raises the question of what barriers there are to adopting and implementing BCAs. There appears to be a significant gap between extant theory and practice on the use of BCAs, which gives rise to the following research question: Why, given the benefits of using BCAs described in the literature and their backing from prominent leaders, have policy-makers not embraced these measures?

A number of hypotheses are conceivable that may explain the apparent lack of BCAs in practice: (1) there may be concerns about the ability of BCAs to comply with World Trade

CO2 Border Tax”, *Bloomberg Businessweek* (26 March 2010), online: Bloomberg Businessweek <<https://www.bloomberg.com/>>, cited in Pauwelyn, *supra* note 13 at 458.

¹⁵ “Dominique de Villepin Propose une Taxe sur le CO2 des Produits Importés”, *Le Monde* (13 November 2006), online: Le Monde <<https://www.lemonde.fr/>>.

¹⁶ “Italy Joins French Calls for EU Carbon Tariff”, *EurActiv* (16 April 2010), online: EurActiv <<http://www.euractiv.com/>>.

¹⁷ EU, European Commission, Letter from Commissioner for Enterprise and Industry Günter Verheugen to President José Manuel Barroso (21 November 2006).

¹⁸ Michael Morris & Edwin Hill, “Trade Is the Key to Climate Change”, *The Energy Daily* (20 February 2007), online: The Energy Daily <<https://www.theenergydaily.com/>>, cited in Pauwelyn, *supra* note 13 at 458.

¹⁹ See e.g. World Bank, *State and Trends of Carbon Pricing 2018* (Washington, DC: World Bank, 2018).

²⁰ Pauwelyn, *supra* note 13 at 458; also Aaron Cosbey et al, “Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature” (2019) 13:1 Review of Environmental Economics and Policy 3 at 4; Michael Mehling et al, “Designing Border Carbon Adjustments for Enhanced Climate Action” (2017) Climate Strategies, Working Paper at 9; David G Victor, *Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet* (Cambridge: Cambridge University Press, 2011) at 85.

Organization (WTO) law or other legal provisions; (2) practical concerns may exist about the administrative complexity and the effectiveness of BCAs to achieve their potential benefits; (3) there may be concerns about repercussions for international relations, such as fears of trade war and retaliation or that BCAs could hamper international climate efforts by reducing jurisdictions' willingness to cooperate; (4) policy-makers and stakeholders could prefer alternative measures that may be less controversial and may offer other advantages; (5) domestic political opposition may outweigh political demand for BCAs due to negative economic impacts from these measures or due to strategic opposition.

The objective of this research is to understand the conditions under which policy-makers do, or do not, adopt and implement BCAs. While there has been occasional speculation in the literature about the reasons BCAs are not implemented more widely in practice, to date no study has subjected this puzzle to specific, empirical analysis that focuses on actual decisions taken by policy-makers on the ground. This study seeks to fill that gap. At the same time, this research also aims to provide policy-makers with lessons learned from experiences with BCAs in practice to help inform their decision-making.

To foreshadow some of the research findings, there are several barriers that prevent the adoption and implementation of BCAs in practice. The evidence shows that policy-makers are likely to meet domestic political opposition to BCAs, may run into opposition from other governments, and may encounter concerns about the circumvention of BCAs. In fact, domestic industry stakeholders overwhelmingly oppose BCAs since they prefer alternative measures, such as free allocation of emission allowances. This is because export-oriented industries fear trade war and retaliation from other jurisdictions, and because BCAs may result in a stakeholder's increased exposure to carbon pricing. Therefore, the circumstances in which BCAs may be implemented successfully, and thus the scope for applying BCAs in practice, appear to be more narrow than acknowledged in the literature.

The next part of this introduction addresses how this research was carried out. It also briefly considers the study's contribution to both scholarship and policy-making practice.

1.3 Research Method

In order to determine the conditions under which policy-makers do, or do not, adopt and implement BCAs, this study empirically tests the above-mentioned hypotheses using four case studies. Applying a systematic analytical approach across all cases, this research compares the following experiences with and attitudes towards BCAs in the EU and in California: (1) the inclusion of international flights in the EU's cap-and-trade system, (2) stationary installations in the EU's cap-and-trade system, (3) the inclusion of electricity imports in California's cap-and-trade program, and (4) industrial facilities in California's cap-and-trade program.

These cases comprise the only known examples of limited BCA development in the world so far.²¹ Both jurisdictions – the EU and California – represent major economies that have large-scale carbon-pricing policies in place. In 2015, for instance, the EU and California had a gross domestic product (GDP) of \$16.4tn and \$2.6tn, respectively.²² In that year, the emissions coverage of the EU's cap-and-trade system was 2,009 Mt CO₂-eq,²³ while that of California's cap-and-trade program was 395 Mt CO₂-eq.²⁴ Because experiences with BCAs have been limited to cap-and-trade systems to date, no carbon taxes have been studied in this research.

This case selection enables the analysis of experiences with and attitudes towards BCAs across different political and legal systems, and levels of jurisdiction. Furthermore, these cases include examples of both limited adoption and rejection of BCAs as well as intermediate policy outcomes within cases. When including the aviation sector in its cap-and-trade system, the EU adopted a measure that was comparable to a BCA, although it

²¹ Note that it is unclear if BCAs have been the subject of sufficiently significant deliberation among policy-makers and stakeholders in other jurisdictions that have applied carbon-pricing policies to date. A minimum level of consideration of BCAs would be required to enable the study of any such policy developments.

²² World Bank, "GDP (Current US\$)", online: World Bank Open Data <<https://data.worldbank.org/>> (retrieved 23 August 2018); US, Bureau of Economic Analysis, "Gross Domestic Product (GDP) by State", online: BEA <<https://www.bea.gov/>> (retrieved 30 May 2018). These figures are in current US dollars.

²³ See EU, European Commission, "Emissions Trading: Questions and Answers Concerning the Second Commission Decision on the EU ETS Cap for 2013 (October 2010)", online: European Commission <<http://ec.europa.eu/>> (retrieved 8 March 2019).

²⁴ US, Cal Code Regs tit 17 § 95841 (2011).

suspended that measure subsequently. By contrast, the EU foresees no BCAs for stationary installations in its cap-and-trade system. California's cap-and-trade program includes imports of electricity, although policy-makers weakened this form of BCA during implementation. Lastly, California does not apply any BCAs for industrial facilities under its cap-and-trade program. This variation both across jurisdictions and over time within jurisdictions provides analytical leverage to understand the impact of various factors on the choice to use or not use BCAs, including stakeholder interests, political institutions, and policy-makers' views on and attitudes towards these measures.

In order to understand what actually happened in policy debates in each jurisdiction, it is essential to speak with those who participated in these discussions, including senior government officials and experts from business, industry, and the environmental community. Therefore, this research draws on information from 43 expert interviews and a wide range of published materials, including scholarly literature from different disciplines, government documents, and newspaper articles, as well as quantitative data from extant economic modelling and international trade statistics.

At times, it proved challenging to retrieve evidence from publicly available materials in addition to information collected through interviews for understanding the policy choices made and strategies pursued by policy-makers and stakeholders. This is both due to the politically sensitive nature of this research and because it often concerns intricate technical questions of policy design that may not be found in publicly available documents. These constraints reinforce the importance of speaking with those who participated in the relevant political processes. Wherever possible, the evidence drawn on for this study was corroborated through multiple sources and documentary materials.

In total, 43 individuals were interviewed for this study. This includes 14 government officials, 13 industry representatives, five representatives of the environmental community, six academics, and five other experts.²⁵ For the two EU case studies, 18 individuals were consulted in person in Brussels, Belgium, between October and November 2015, while four

²⁵ Because industry interests were advocated by various associations representing individual sectors, more industry associations than environmental organizations were present both in the EU and in California.

interviews were conducted over the phone in June 2016 and November 2017. For the two California case studies, 10 individuals were consulted in person in Sacramento, California, in October 2017, while 11 interviews were conducted over the phone between October and November 2017 and in August 2018. The interviews were semi-structured and lasted between 30 minutes and two hours, with an average duration of one hour. While the interviewees informed the research through their statements, the participants do not necessarily endorse the conclusions reached in this research.

Each interviewee had the option to be interviewed on the record or maintain confidentiality. In the latter case, interviewees could specify how they wished to be referred to should information or quotes be used from the interview. Interviewees who had requested to review their statements before the publication of this research were given the opportunity to do so. The interviewees were selected for inclusion in this research based on their involvement in relevant policy debates in the EU and California. They were identified through public records, including media coverage and websites of government departments, business, industry, and environmental groups. The University of British Columbia's Behavioural Research Ethics Board approved the research for this project.

The author's experience with these interviews was illustrative of the politically sensitive nature of this research. Some of the interviewees both declined to be recorded during the interview and allowed information conveyed in the interview to be used only subject to explicit approval afterwards. In most of these cases, the interviewees did not consent to their statements being published in this dissertation. Wherever possible, other sources were drawn on to convey the information from such interviews.

By investigating the potential benefits of and barriers to BCAs and by drawing lessons from the failures and limited successes to implement these measures, the research will help identify why, despite advice from academics, policy-makers appear reluctant to use BCAs. With that knowledge, it may be possible to inform policy-making efforts worldwide, in collaboration with government officials. Considering that more ambitious policies are urgently needed to address climate change, tools to safeguard the competitiveness of domestic industries are essential. Since BCAs are among the most promising options to address these concerns, there is a need to investigate their viability. Furthermore, given that

international climate efforts under the United Nations Framework Convention on Climate Change (UNFCCC) are based on unilateral pledges to reduce emissions with national variations in ambition, BCAs could become increasingly important in the future as a tool to equalize these differences by levelling the playing field between countries. Therefore, to make much-needed progress in implementing effective policies to reduce emissions, it is crucial to bridge the gap between the theory and practice of BCAs.

1.4 Outline of Dissertation

The next six chapters of this dissertation proceed as follows. Chapter 2 reviews both the potential benefits of BCAs and potential barriers to adopting and implementing them. It also offers a theoretical discussion of BCAs based on the extant literature. While there are potentially significant benefits from enhancing domestic climate policies with BCAs, the chapter also highlights a number of concerns about these measures. These potential barriers to BCAs form the hypotheses that are tested empirically in the case studies that follow.

Chapters 3 to 6 consist of four case studies that explore specific experiences with BCAs. Each chapter explains the relevant policy developments and tests the study's hypotheses to determine the factors leading to the policy outcomes in these cases. Chapters 3 and 4 relate to BCA development in the EU, while chapters 5 and 6 concern experiences in California.

Chapter 3 examines the inclusion of the aviation sector in the EU's cap-and-trade system. As part of this endeavour, the EU sought to include international flights in this system, which is comparable to a BCA. Although the aviation inclusion was passed into law, international flights were subsequently exempted from the policy. While strong support from policy-makers for the coverage of international flights was able to overcome opposition from EU stakeholders initially, the emergence of vigorous international opposition during the implementation of the policy sparked fears of trade war and retaliation that led to the subsequent exemption of international flights. Key EU stakeholders, notably airline Lufthansa and aircraft manufacturer Airbus, successfully lobbied policy-makers to exempt international flights.

Chapter 4 investigates the EU's experience with BCAs for stationary installations under its cap-and-trade system. Although BCAs for stationary installations have been the subject of

recurring, albeit relatively muted, debate throughout the existence of the EU's cap-and-trade system, no such BCAs have been used in the system. Stakeholders' predominantly negative attitude towards BCAs and policy-makers' limited willingness to engage in a discussion on these measures prevented their adoption. Industry stakeholders preferred free allocation of emission allowances as an alternative to BCAs, which offered them significant financial value, and policy-makers enjoyed the political advantages that came with this value. At the same time, the use of free allocation avoided the risk of repercussions for international relations.

Chapter 5 analyzes the inclusion of electricity imports in California's cap-and-trade program. Although imports of electricity have been included from the start of the cap-and-trade program, policy-makers have struggled to prevent market participants from circumventing this form of BCA. While a strong coalition of policy-makers and environmental non-governmental organizations (NGOs) was able to fend off opposition to the BCA initially, political opposition from a group of major utilities, driven by concerns about regulatory ambiguity and the BCA's effectiveness in achieving emissions reductions, subsequently led policy-makers to weaken the BCA by granting significant exemptions.

Chapter 6 studies California's experience with BCAs for industrial facilities in its cap-and-trade program. Although BCAs for industrial facilities have received some degree of attention in California over the years, the state has not applied any such measures in its cap-and-trade program to date. Overwhelming stakeholder opposition in combination with limited demand for these measures explains this policy outcome. Industry stakeholders preferred free allocation of emission allowances as an alternative to BCAs for industrial facilities, which offered them significant financial value and came with political advantages for policy-makers.

The final chapter 7 highlights the case studies' key findings and compares experiences with BCAs across these cases to generate evidence-based insights about the adoption and implementation of BCAs in practice. The chapter presents the research findings for each hypothesis and offers recommendations for policy-makers. It also addresses the study's limitations and suggests areas for further research.

2 The Promise and Problems of Border Carbon Adjustments

2.1 Introduction

Although there are potentially significant benefits from enhancing domestic climate policies with BCAs, there are also a number of concerns about these measures. This chapter reviews both the potential benefits of BCAs and the potential barriers to adopting and implementing them. The potential barriers form the hypotheses that are tested empirically in the case studies that follow in chapters 3 to 6. While this chapter does not aim to provide a normative assessment of the desirability of BCAs, it explores the practical implications that policy-makers might encounter when adopting and implementing BCAs in practice.

On the one hand, BCAs offer the promise of economic, environmental, and political benefits. In protecting the competitiveness of domestic industries relative to peers in jurisdictions with more lenient standards, such measures could avoid negative economic consequences, increase environmental benefits by countering carbon leakage, and, in doing so, build greater political support for domestic carbon pricing or regulation. What is more, depending on their design, BCAs may even incentivize other jurisdictions to implement their own climate policies or join international efforts to cut emissions.

On the other hand, there may also be questions about the ability of BCAs to comply with WTO law or other legal provisions, practical concerns about the administrative complexity of BCAs and their effectiveness in achieving their potential benefits, fears of repercussions for international relations, preferences among policy-makers and stakeholders for alternative measures, and domestic political opposition to BCAs.

The chapter concludes that, based on the extant literature, BCAs may be particularly appealing to policy-makers aiming to furnish their domestic climate policies with a high degree of environmental effectiveness. Where environmental effectiveness objectives are not in the foreground, however, policy-makers may turn to alternative measures that are less controversial and offer other advantages, while avoiding the risks of BCAs. Although the choice to apply BCAs depends on the specific circumstances and constraints that policy-makers face in a particular policy setting, the barriers to BCAs may be difficult to overcome.

The remainder of this chapter proceeds as follows. Part 2.2 examines the potential benefits of BCAs, and part 2.3 considers the potential barriers to adopting and implementing them. Based on this extant literature, part 2.4 offers a theoretical discussion of BCAs. Part 2.5 concludes with a summary.

2.2 Potential Benefits of BCAs

BCAs may be beneficial from an economic, environmental, and political perspective. The discussion first addresses their potential to safeguard the competitiveness of domestic industries, reducing the loss of jobs, and counter policy-induced carbon leakage (section 2.2.1) as well as demand-driven carbon leakage (section 2.2.2). The discussion then addresses BCAs' potential to lessen domestic political opposition to climate policies (section 2.2.3) before turning to their potential benefit of incentivizing other jurisdictions to take climate action (section 2.2.4).

Before explaining each of these potential benefits in detail, it should be noted that there are two types of carbon leakage, namely policy-induced and demand-driven carbon leakage, each of which can be countered using BCAs.¹ Policy-induced carbon leakage refers to the shift of emissions to other jurisdictions with more lenient climate policies in response to domestic climate policies.² Demand-driven carbon leakage is independent of the cause of the emissions shift, thus includes policy-induced carbon leakage, and comprises the entirety of emissions released abroad to meet consumption in a given jurisdiction.³ Since these two types of leakage differ both in scale and in how they are quantified, they are discussed separately.

¹ For an overview of these two types of carbon leakage, see Glen P Peters, "Managing Carbon Leakage" (2010) 1:1 Carbon Management 35.

² Glen P Peters & Edgar G Hertwich, "CO2 Embodied in International Trade with Implications for Global Climate Policy" (2008) 42:5 Environmental Science & Technology 1401 at 1402 [Peters & Hertwich, "CO2 Embodied"]; Peters, *supra* note 1 at 36.

³ Peters & Hertwich, "CO2 Embodied", *supra* note 2; Peters, *supra* note 1 at 35-36.

2.2.1 Safeguarding Competitiveness, Reducing Loss of Jobs, Countering Policy-Induced Carbon Leakage

A potential triple benefit may arise from using BCAs in jurisdictions that have implemented domestic climate policies. By levelling the playing field of costs from domestic climate policies, BCAs may safeguard the competitiveness of industries that are subject to these policies. This, in turn, may reduce the loss of jobs from jurisdictions that show leadership in mitigating climate change. In addition to these economic arguments in favour of BCAs, an environmental argument for BCAs can be made as well because they may counter policy-induced carbon leakage.

Policy-induced carbon leakage, also known as strong carbon leakage, can occur through two main channels, namely the fossil fuel market channel and the competitiveness channel on non-energy markets.⁴ Under the fossil fuel market channel, domestic climate policy reduces demand for fossil fuels in the regulating jurisdiction, which may lower international fossil fuel prices and, in turn, increase fossil fuel consumption in jurisdictions without climate policies.⁵ Under the competitiveness channel, domestic climate policy increases costs for domestic energy-intensive and trade-exposed (EITE) industries, which may incentivize the relocation of industrial production to jurisdictions without climate policies and amplify adverse impacts on production and employment in these industries.⁶

While the concept of policy-induced carbon leakage is well established, its magnitude and the relative importance of the different leakage channels are less clear.⁷ Only a few

⁴ Christoph Böhlinger, Edward J Balistreri & Thomas F Rutherford, “The Role of Border Carbon Adjustment in Unilateral Climate Policy: Overview of an Energy Modeling Forum Study (EMF 29)” (2012) 34 *Energy Economics* S97 at S97.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ See e.g. Nico Bauer et al, “CO2 Emission Mitigation and Fossil Fuel Markets: Dynamic and International Aspects of Climate Policies” (2015) 90 *Technological Forecasting and Social Change* 243 at 244; Onno Kuik & Marjan Hofkes, “Border Adjustment for European Emissions Trading: Competitiveness and Carbon Leakage” (2010) 38:4 *Energy Policy* 1741 at 1742.

empirical studies exist that evaluate the actual extent of policy-induced carbon leakage.⁸ For instance, in an econometric ex-post analysis of the Kyoto Protocol, Aichele and Felbermayr show that countries that have ratified the Kyoto Protocol and committed to emissions reductions under this agreement have reduced their domestic emissions by about 7%, while at the same time increasing the ratio of net carbon imports over domestic emissions by about 14 percentage points.⁹ Later, these authors showed that Kyoto countries' exports were reduced by 13-14% due to the Kyoto commitment, with the most profound effects found in energy-intensive industries, which suggests a loss in competitiveness in such sectors.¹⁰ In a more recent study, these same authors find that the Kyoto Protocol has led to carbon leakage with an estimated leakage rate of some 40%, which means that emissions in non-Kyoto countries increased by an amount equivalent to 40% of the emissions reduced in Kyoto countries.¹¹

Other studies have focused on the EU Emissions Trading System (ETS). Bolscher et al. find no evidence for policy-induced carbon leakage in the EU ETS between 2005 and 2012.¹² However, the authors note that the direct costs from the EU ETS were limited during this time due to an abundance of emission allowances in the system, most of which were allocated free of charge, and the use of international offset credits for compliance.¹³ Thus, the report cautions that higher carbon prices could lead to policy-induced carbon leakage in the future.¹⁴ Similarly, Ellerman, Convery, and Perthuis examined the EU ETS between 2005

⁸ Intergovernmental Panel on Climate Change, *Climate Change 2014, Mitigation of Climate Change: Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge, UK: Cambridge University Press, 2014) at 386.

⁹ Rahel Aichele & Gabriel Felbermayr, "Kyoto and the Carbon Footprint of Nations" (2012) 63:3 *Journal of Environmental Economics and Management* 336 [Aichele & Felbermayr, "Carbon Footprint of Nations"].

¹⁰ Rahel Aichele & Gabriel Felbermayr, "Estimating the Effects of Kyoto on Bilateral Trade Flows Using Matching Econometrics" (2013) 36:3 *The World Economy* 303 [Aichele & Felbermayr, "Effects of Kyoto"].

¹¹ Rahel Aichele & Gabriel Felbermayr, "Kyoto and Carbon Leakage: An Empirical Analysis of the Carbon Content of Bilateral Trade" (2015) 97:1 *Review of Economics and Statistics* 104 at 114-115.

¹² See Hans Bolscher et al, "Carbon Leakage Evidence Project: Factsheets for Selected Sectors" (2013) Ecorys at 11.

¹³ *Ibid.*

¹⁴ *Ibid* at 14.

and 2007 and also found no statistical evidence for policy-induced carbon leakage.¹⁵ Like Bolscher et al., however, the authors note that the EU ETS carbon price was new and volatile during this period and that many installations received allowances free of charge and in excess of their actual emissions.¹⁶

Focusing on the cement and iron and steel industries, Chan, Li, and Zhang analyze the EU ETS until 2009 and report that their findings cannot substantiate concerns over policy-induced carbon leakage in these sectors, although the authors also remark that the use of free allocation could partially explain this observation.¹⁷ Similarly, Branger, Quirion, and Chevallier were unable to observe carbon leakage in the cement and steel sectors due to the EU ETS until 2012, but they note that these sectors have benefited from generous free allocation of emission allowances.¹⁸ The relatively low carbon price levels experienced since 2013 further limit the costs from the EU ETS, thus reducing the likelihood of policy-induced carbon leakage. In sum, it appears difficult to determine the risk of policy-induced carbon leakage in the EU ETS empirically due to the existence of free allocation and the relatively low carbon price in recent years, although the risk could increase with a more stringent policy framework in the future.

More common than empirical studies are studies that rely on economic models to simulate the leakage effects of domestic climate policies. The various models used in these studies draw on specific assumptions, including market characteristics and the stringency of climate policies. The indicator typically used to quantify the leakage problem is the rate of leakage, indicated as the fraction of unilateral emissions reductions that are offset by increases in emissions abroad.¹⁹

¹⁵ A Denny Ellerman, Frank J Convery & Christian de Perthuis, *Pricing Carbon: The European Union Emissions Trading Scheme* (Cambridge: Cambridge University Press, 2010) at 233.

¹⁶ *Ibid* at 233-234.

¹⁷ Hei Sing (Ron) Chan, Shanjun Li & Fan Zhang, “Firm Competitiveness and the European Union Emissions Trading Scheme” (2013) 63 *Energy Policy* 1056 at 1064, 1057.

¹⁸ Frédéric Branger, Philippe Quirion & Julien Chevallier, “Carbon Leakage and Competitiveness of Cement and Steel Industries Under the EU ETS: Much Ado About Nothing” (2013) CIRED, Working Paper 53-2013 at 23.

¹⁹ Intergovernmental Panel on Climate Change, *supra* note 8 at 386.

At the high end of the estimates available in the economic modelling literature, Babiker finds that leakage rates for energy-intensive industries may be as high as 130% under certain types of market structures, a finding that would mean climate policies in industrialized countries could in fact lead to an increase in global emissions.²⁰ Other studies, however, estimate leakage rates to be well below 100%. For instance, Arroyo-Currás et al. model the policy-induced carbon leakage rate of pioneering regions that adopt ambitious climate action early on and find it to be limited to 16%.²¹ Furthermore, Böhringer, Balistreri, and Rutherford compare the results of 12 economic models that simulate the impacts of unilateral carbon pricing in industrialized countries on their EITE industries.²² They find policy-induced carbon leakage rates between 5% and 19%, with a mean average of 12% across all models.²³ These models, however, do not account for industrial process emissions,²⁴ which form a substantial share in total emissions of energy-intensive sectors like cement and steel.²⁵ Bednar-Friedl, Schinko, and Steininger find policy-induced carbon leakage rates to be almost one third higher when taking into account industrial process emissions.²⁶

Whereas most studies focus on the competitiveness channel as the main driver of policy-induced carbon leakage, Bauer et al. employ 11 models to simulate the carbon leakage rates with a specific focus on the impacts of domestic climate policies on fossil fuel markets.²⁷ While most of their models estimate leakage rates to range between 4% and 22%, which is largely in line with other research results, one model results in a leakage rate of up to 62% and three models show marginally negative leakage rates of up to around -4%.²⁸ A negative

²⁰ Mustafa H Babiker, “Climate Change Policy, Market Structure, and Carbon Leakage” (2005) 65:2 *Journal of International Economics* 421.

²¹ Tabaré Arroyo-Currás et al, “Carbon Leakage in a Fragmented Climate Regime: The Dynamic Response of Global Energy Markets” (2015) 90 *Technological Forecasting and Social Change* 192.

²² Böhringer, Balistreri & Rutherford, *supra* note 4.

²³ *Ibid* at S100.

²⁴ *Ibid* at S99, n 1.

²⁵ Birgit Bednar-Friedl, Thomas Schinko & Karl W Steininger, “The Relevance of Process Emissions for Carbon Leakage: A Comparison of Unilateral Climate Policy Options With and Without Border Carbon Adjustment” (2012) 34 *Energy Economics* S168 at S168.

²⁶ *Ibid*.

²⁷ Bauer et al, *supra* note 7.

²⁸ *Ibid* at 252.

leakage rate means that global emissions decrease even below the level of the domestic reductions.²⁹ This can occur where the fossil fuel market channel of carbon leakage leads to a substitution of coal consumption with less carbon-intensive fuels in jurisdictions without climate policy. Specifically, where domestic climate policies reduce gas and oil consumption in acting jurisdictions, this may increase the global supply of these fossil fuels and, in turn, substitute coal consumption in jurisdictions without domestic climate policies, thus reducing emissions even in non-acting jurisdictions.³⁰

The wide range of leakage rates found in the economic modelling literature illustrates that such simulations are predicated on a number of model-specific assumptions.³¹ In addition, they differ in their focus of different leakage channels. Nevertheless, both empirical and economic modelling studies document the risk of policy-induced carbon leakage involved in enacting unilateral carbon-pricing policies. Against this background, BCAs feature prominently as a solution to the problem of policy-induced carbon leakage in the absence of uniform global carbon pricing.³²

As only very few examples of limited BCAs exist,³³ empirical studies on the effects of BCAs on leakage rates are not available to date. However, research based on economic models indicates that although BCAs mainly target the competitiveness channel and are considered to have no or insignificant effects on carbon leakage through the fossil fuel market channel,³⁴ they can effectively reduce policy-induced carbon leakage. In their

²⁹ See *ibid.*

³⁰ See *ibid* at 245, 255.

³¹ Böhringer, Balistreri & Rutherford, *supra* note 4 at S100.

³² See e.g. Aichele & Felbermayr, “Carbon Footprint of Nations”, *supra* note 9 at 351; Aichele & Felbermayr, “Effects of Kyoto”, *supra* note 10 at 326; Böhringer, Balistreri & Rutherford, *supra* note 4 at S97; Bednar-Friedl, Schinko & Steininger, *supra* note 25 at S168.

³³ See Joost Pauwelyn, “Carbon Leakage Measures and Border Tax Adjustments under WTO Law” in Geert Van Calster & Denise Prévost, eds, *Research Handbook on Environment, Health and the WTO* (Cheltenham: Edward Elgar, 2013) 448 at 456, 459-461 [Pauwelyn, “Carbon Leakage Measures”]; Aaron Cosbey et al, “Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature” (2019) 13:1 *Review of Environmental Economics and Policy* 3 at 4; Michael Mehling et al, “Designing Border Carbon Adjustments for Enhanced Climate Action” (2017) *Climate Strategies*, Working Paper at 9 [Mehling et al, “Designing BCAs”].

³⁴ Kuik & Hofkes, *supra* note 7 at 1747; Böhringer, Balistreri & Rutherford, *supra* note 4 at S107; see also Cosbey et al, *supra* note 33 at 5-6.

comparison of 12 economic models, Böhringer, Balistreri, and Rutherford find that complementing unilateral carbon pricing in industrialized countries with BCAs for EITE industries reduces the leakage rate on average by one third compared to unilateral carbon pricing in industrialized countries without BCAs.³⁵ Balistreri and Rutherford show that an alternative representation of international trade in their economic model can even yield an estimated reduction of the leakage rate by around half.³⁶

Furthermore, Bednar-Friedl, Schinko, and Steininger find that when taking into account industrial process emissions, BCAs' effectiveness in reducing policy-induced carbon leakage is doubled.³⁷ Kuik and Hofkes simulate the carbon leakage resulting from the EU's cap-and-trade system and show that BCAs could reduce the leakage rate by around a quarter, with the steel sector standing to benefit from a particularly strong reduction of up to 94%.³⁸ This more disaggregated analysis shows that the effectiveness of BCAs to counter carbon leakage differs by sector, which the authors attribute to differences in how sectors are affected by different leakage channels.³⁹ This suggests that BCAs may be more effective in some sectors than in others at reducing policy-induced carbon leakage and safeguarding their competitiveness.

Finally, it should be noted that none of the studies examining the extent of policy-induced carbon leakage or the effectiveness of BCAs specifically assesses the impact of reduced competitiveness on employment levels. Nevertheless, while concentrating on the impact of unilateral climate policies on leakage rates, several of these studies recognize the general link between a loss of competitiveness and the loss of jobs.⁴⁰

³⁵ Böhringer, Balistreri & Rutherford, *supra* note 4 at S100.

³⁶ Edward J Balistreri & Thomas F Rutherford, "Subglobal Carbon Policy and the Competitive Selection of Heterogeneous Firms" (2012) 34 Energy Economics S190 at S194.

³⁷ Bednar-Friedl, Schinko & Steininger, *supra* note 25 at S174.

³⁸ Kuik & Hofkes, *supra* note 7 at 1746-1747.

³⁹ See *ibid.*

⁴⁰ See Böhringer, Balistreri & Rutherford, *supra* note 4 at S97; Chan, Li & Zhang, *supra* note 17 at 1057; Arroyo-Currás et al, *supra* note 21 at 192; also Stéphanie Monjon & Philippe Quirion, "Addressing Leakage in the EU ETS: Border Adjustment or Output-Based Allocation?" (2011) 70:11 Ecological Economics 1957 at 1958.

To conclude, although the precise magnitude of policy-induced carbon leakage is unclear, the issue remains of concern and economic modelling shows that BCAs can substantially reduce such leakage, safeguard the competitiveness of industries, and thus reduce the loss of jobs.

2.2.2 Countering Demand-Driven Carbon Leakage

In addition to the potential triple benefit set out in the previous section, BCAs may also counter demand-driven carbon leakage. This problem, also known as weak carbon leakage, may be described as the shift of emissions to meet consumption in other jurisdictions as a consequence of actions or policies that are not necessarily related to domestic climate policy.⁴¹

Only in recent years has the concept of demand-driven carbon leakage begun to find its way into the mainstream climate literature. For instance, while the issue was not yet considered in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,⁴² the body's Fifth Assessment Report now covers the concept alongside the more traditional concern of policy-induced carbon leakage.⁴³ Compared to policy-induced carbon leakage, demand-driven carbon leakage may in fact be the more serious leakage problem of the two.⁴⁴

The study of demand-driven carbon leakage is analogous to the comparison of different kinds of emissions inventories, namely territorial and consumption-based emissions inventories.⁴⁵ On the one hand, traditional territorial emissions inventories account for emissions based on where they are released, disregarding the question of where the so-produced goods and services are finally consumed. This is the accounting approach applied in the context of the United Nations Framework Convention on Climate Change and its

⁴¹ See Intergovernmental Panel on Climate Change, *supra* note 8 at 386; Peters, *supra* note 1 at 35.

⁴² *Ibid* at 37.

⁴³ See Intergovernmental Panel on Climate Change, *supra* note 8 at 385-386.

⁴⁴ Peters, *supra* note 1 at 36.

⁴⁵ *Ibid*.

Kyoto Protocol. Consumption-based emissions inventories, on the other hand, attribute emissions to jurisdictions based on their consumption of goods and services, which includes emissions released abroad to satisfy domestic demand.⁴⁶

While studies of policy-induced carbon leakage usually draw on static computable general equilibrium models, studies of demand-driven carbon leakage use attribution models.⁴⁷ By analyzing international trade flows and quantifying the “emissions embodied in trade,” it is possible to determine how much of a jurisdiction’s domestic consumption was supported by emissions released abroad.⁴⁸ Whereas policy-induced carbon leakage only considers a subset of international trade flows, namely those that are explicitly linked to the implementation of domestic climate policy, demand-driven carbon leakage considers all international trade flows.⁴⁹ Therefore, demand-driven carbon leakage includes policy-induced carbon leakage. Moreover, demand-driven carbon leakage is independent of the cause of emissions shift.⁵⁰ In fact, studies of demand-driven carbon leakage give no indication as to the cause of such leakage.⁵¹

Davis and Caldeira present a global consumption-based emissions inventory for the year 2004 and report that 23% of global CO₂ emissions from fossil fuel combustion in this year were embodied in trade, which means that this was the share of emissions released during the production of goods that were ultimately consumed in a different country.⁵² At the country-level, they find that, for instance, 19% of the emissions released to support the production of goods consumed in the US occurred outside of this jurisdiction, while 28% of the emissions released in China supported the production of goods consumed outside of China.⁵³

⁴⁶ See e.g. Glen P Peters & Edgar G Hertwich, “Post-Kyoto Greenhouse Gas Inventories: Production Versus Consumption” (2008) 86:1-2 *Climatic Change* 51.

⁴⁷ Peters, *supra* note 1 at 36.

⁴⁸ Ken Caldeira & Steven J Davis, “Accounting for Carbon Dioxide Emissions: A Matter of Time” (2011) 108:21 *Proceedings of the National Academy of Sciences of the United States of America* 8533 at 8533.

⁴⁹ Peters, *supra* note 1 at 36.

⁵⁰ Glen P Peters & Edgar G Hertwich, “Trading Kyoto” (2008) 2:4 *Nature Reports Climate Change* 40 at 41.

⁵¹ Intergovernmental Panel on Climate Change, *supra* note 8 at 386; Peters, *supra* note 1 at 36.

⁵² Steven J Davis & Ken Caldeira, “Consumption-Based Accounting of CO₂ Emissions” (2010) 107:12 *Proceedings of the National Academy of Sciences of the United States of America* 5687 at 5688.

⁵³ Caldeira & Davis, *supra* note 48 at 8533.

Expanding this static analysis of a single year, Peters et al. investigate the change in emissions embodied in trade over time.⁵⁴ They report that under traditional territorial accounting of emissions, developed countries' emissions have decreased by around 2% between 1990 and 2008, and developing countries' emissions have increased by around 113% in the same period. Adjusting these figures for emissions embodied in trade shows that developed countries' consumption emissions have in fact increased by around 7% between 1990 and 2008, while developing countries' consumption emissions have increased by 100% during this time.⁵⁵ Therefore, taking into account the emissions embodied in trade "reverses the decreasing trend in emissions in developed countries, turning a 2% decrease into a 7% increase."⁵⁶ What is more, the emissions embodied in trade have increased rapidly over time, with an average annual increase of over 4% between 1990 and 2008.⁵⁷ In cumulative terms, international trade has relocated 16 Gt CO₂ from developed to developing countries between 1990 and 2008.⁵⁸ In fact, the extent of this consumption-based leakage exceeds the emissions reductions under the Kyoto Protocol.⁵⁹ This suggests that at least some of the emissions that the Kyoto Protocol was intended to reduce have moved abroad rather than been cut.⁶⁰

When disaggregating these international trade flows at a sectoral level, a growing share of global exported emissions can be attributed to non-energy-intensive manufacturing sectors, such as textiles or electronics.⁶¹ For instance, while these sectors accounted for 24% of emissions embodied in trade in 1990, this share rose to 30% in 2008.⁶² Nevertheless, energy-intensive industries, such as cement, steel, or pulp and paper, remain the single

⁵⁴ Glen P Peters et al, "Growth in Emission Transfers via International Trade from 1990 to 2008" (2011) 108:21 *Proceedings of the National Academy of Sciences of the United States of America* 8903.

⁵⁵ *Ibid* at 8904.

⁵⁶ Caldeira & Davis, *supra* note 48 at 8534.

⁵⁷ Peters et al, *supra* note 54 at 8904.

⁵⁸ *Ibid*.

⁵⁹ *Ibid* at 8903.

⁶⁰ Anna Petherick, "When Carbon Footprints Hop" (2012) 2:7 *Nature Climate Change* 484 at 484.

⁶¹ Peters et al, *supra* note 54 at 8906.

⁶² *Ibid*.

largest contributor to demand-driven carbon leakage, accounting for 40% of emissions embodied in trade in 2008.⁶³

To summarize, the problem of consumption-based carbon leakage gives rise to serious concerns about the effectiveness of fragmented climate policies that fail to take into account international trade.⁶⁴ Due to the rapid growth of emissions embodied in trade, both in the form of products and fossil fuels, existing climate policies risk becoming less effective every year.⁶⁵ To address this growing problem and account for international trade flows, domestic climate policies could be enhanced with BCAs. As shown in a number of economic modelling studies, BCAs are effective tools to reduce carbon leakage.⁶⁶ BCAs can extend the coverage, and thus the environmental reach, of climate policies beyond the domestic domain,⁶⁷ and they can ensure that consumers in developed countries bear the full cost of the goods they consume.⁶⁸

2.2.3 Lessening Domestic Political Opposition to Climate Policies

BCAs could also lessen domestic political opposition,⁶⁹ thus rendering the adoption of domestic climate policies politically more feasible and enabling deeper emission cuts where such policies exist already.

Generally speaking, small groups of stakeholders that face significant costs or benefits are likely to exert more political influence than larger groups facing more diffuse costs or

⁶³ *Ibid*; besides non-energy-intensive manufacturing sectors, the remainder of emissions embodied in trade is attributed to the sectors of mining, transport, services, food, and agriculture.

⁶⁴ Caldeira & Davis, *supra* note 48 at 8534; Peters & Hertwich, “CO2 Embodied”, *supra* note 2 at 1401.

⁶⁵ Robbie M Andrew, Steven J Davis & Glen P Peters, “Climate Policy and Dependence on Traded Carbon” (2013) 8:3 Environmental Research Letters 1 at 1.

⁶⁶ See section 2.2.1, above.

⁶⁷ Andrew, Davis & Peters, *supra* note 65 at 6; Clayton Munnings et al, “Pricing Carbon Consumption: A Review of an Emerging Trend” (2016) Resources for the Future, Discussion Paper 16-49 at 5-6.

⁶⁸ Carolyn Fischer, “Trade’s Growing Footprint” (2011) 1:3 Nature Climate Change 146 at 147; Peters & Hertwich, “CO2 Embodied”, *supra* note 2 at 1406. If BCAs improve a levying-nation’s terms of trade, however, the abatement costs could still be shifted on to the carbon-emitting country; see Christoph Böhringer, Jared C Carbone & Thomas F Rutherford, “The Strategic Value of Carbon Tariffs” (2016) 8:1 American Economic Journal: Economic Policy 28 at 40-41.

⁶⁹ Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 452.

benefits.⁷⁰ Thus, opponents of climate policy can be expected to be more influential, the greater the costs of compliance resulting from that policy.⁷¹ Since EITE industries are among those sectors to experience the most profound economic impacts from climate policies,⁷² they are likely to form the most vehement opposition to such policies.

The relative influence of interest groups further depends on their ability to mobilize the electorate at large. Interest groups' claims to speak for that electorate are likely to have a more profound impact when public opinion aligns with the interests these groups represent. For example, when the salience of environmental issues is relatively low or the salience of economic issues is relatively high, politicians are likely to be receptive to industry representatives claiming to speak on behalf of voters' interest in jobs and the economy.⁷³ Political institutions may play a role as well in determining how successful political opposition to climate policy can be. Political systems featuring multiple veto points, such as in the US, present more opportunities for opponents to block climate policy, making it easier for the status quo to prevail.⁷⁴ Therefore, particularly in situations where public opinion is aligned with industry interests and where political institutions exhibit multiple veto points, groups representing EITE industry interests are likely to be influential in opposing domestic climate policies and, ultimately, in shaping relevant policy outcomes.

BCAs may lessen such opposition. As shown in a number of economic modelling studies,⁷⁵ BCAs are effective measures to level the playing field of costs from unilateral climate policies and thus to safeguard the competitiveness of domestic EITE industries.⁷⁶

⁷⁰ See Mancur Olson, *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* (New Haven, CT: Yale University Press, 1982) at 34.

⁷¹ Kathryn Harrison & Lisa McIntosh Sundstrom, "Introduction: Global Commons, Domestic Decisions" in Kathryn Harrison & Lisa McIntosh Sundstrom, eds, *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change* (Cambridge, MA: MIT Press, 2010) 1 at 9.

⁷² See e.g. Robert N Stavins, "Addressing Climate Change With a Comprehensive US Cap-And-Trade System" (2008) 24:2 Oxford Review of Economic Policy 298 at 313.

⁷³ Harrison & Sundstrom, *supra* note 71 at 9.

⁷⁴ *Ibid* at 4, 17; Kathryn Harrison, "The United States as Outlier: Economic and Institutional Challenges to US Climate Policy" in Kathryn Harrison & Lisa McIntosh Sundstrom, eds, *Global Commons, Domestic Decisions: The Comparative Politics of Climate Change* (Cambridge, MA: MIT Press, 2010) 67 at 68.

⁷⁵ See section 2.2.1, above.

⁷⁶ See e.g. Böhringer, Balistreri & Rutherford, *supra* note 4 at S102.

Specifically, BCAs on imports may protect domestic EITE industries from foreign competition, while BCAs on exports may level the playing field for EITE industries competing on foreign markets. In addition, green businesses, such as renewable energy producers, and emissions-efficient EITE producers may support BCAs on imports as they drive up the costs for less efficient foreign competitors. What is more, BCAs could avoid alternative measures for cost containment that may harm the environmental effectiveness of domestic climate policies, such as exemptions or weakening of mitigation targets, or impair their cost-effectiveness, such as free allocation of emission allowances.⁷⁷

In sum, BCAs may offer political advantages as they may reduce domestic political opposition to climate policies.⁷⁸ Due to their ability to level the playing field of costs from unilateral climate policies, BCAs may lead domestic EITE industries to drop their opposition or even lend their explicit support to the introduction of domestic climate policy. Correspondingly, where domestic climate policy has been adopted already, the addition of BCAs may allow policy-makers to tighten their reduction targets, thus enabling deeper emission cuts. As a result, particularly where significant opposition to domestic climate policy from influential industry groups exists, BCAs may help tip the scales towards political support from these stakeholders.

2.2.4 Incentivizing Other Jurisdictions to Take Climate Action

Lastly, BCAs could incentivize other jurisdictions to implement their own climate policies or join international efforts to cut emissions.⁷⁹ Considering the slow progress towards an effective international climate action and the general lack of domestic climate initiatives to make up for the absence of effective multilateral solutions, the potential of BCAs to incentivize other jurisdictions could inspire progress in reducing global emissions.

⁷⁷ See Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 452.

⁷⁸ *Ibid.*

⁷⁹ *Ibid*; Tracey Epps & Andrew Green, *Reconciling Trade and Climate: How the WTO Can Help Address Climate Change* (Cheltenham: Edward Elgar, 2010) at 208.

The past two decades have revealed a serious deadlock in the effort of securing international climate action that effectively limits the global rise in emissions. Although more and more domestic carbon-pricing initiatives are implemented throughout the world,⁸⁰ this largely uncoordinated patchwork-type process is progressing at an arguably sluggish pace. In the absence of effective global action, and given the relatively slow uptake of sub-global initiatives, alternative ways to counter the unchecked rise of global emissions are sorely needed.

Against this background, BCAs may constitute an alternative to global climate action. By offering to exempt imports from jurisdictions that implement their own climate policies or join international efforts to cut emissions, jurisdictions adopting BCAs can provide incentives for others to take climate action. This way, BCAs can leverage a jurisdiction's desire to collect revenues domestically that accrue from imposing a carbon price on trade flows rather than letting others capture these rents.⁸¹

Similarly, Vogel shows that regulatory competition among trading partners may not necessarily lead to a "race to the bottom," but can in fact result in a "race to the top" that drives domestic environmental policies upwards in ambition.⁸² Named after the US state whose automobile emissions standards spurred such an outcome, this "California effect" can occur where affluent jurisdictions with large markets, and thus market power, adopt more stringent environmental policies than their trading partners, forcing producers abroad to adjust their production for continued access to these markets.⁸³ Recognizing this adjustment as a competitive advantage, export-oriented producers may be more likely to support more stringent environmental policies in their own jurisdiction because their exports to greener markets already comply with those more ambitious policies.⁸⁴ While Vogel observes this effect with product standards, BCAs that extend a domestic carbon price to imported goods

⁸⁰ See World Bank, *State and Trends of Carbon Pricing 2018* (Washington, DC: World Bank, 2018).

⁸¹ Dieter Helm, Cameron Hepburn & Giovanni Ruta, "Trade, Climate Change, and the Political Game Theory of Border Carbon Adjustments" (2012) 28:2 *Oxford Review of Economic Policy* 368 at 391.

⁸² David Vogel, *Trading Up: Consumer and Environmental Regulation in a Global Economy* (Cambridge, MA: Harvard University Press, 1995) at 6-7.

⁸³ *Ibid* at 6.

⁸⁴ *Ibid*.

could similarly help raise the level of ambition of environmental policies in trading partners' jurisdictions with less stringent policies.⁸⁵

Atkinson et al. estimate effective tariff rates of BCAs on global trade flows and find, at a carbon price of \$50/tCO₂, average tariff rates of 10%, 8%, and 12% for goods exported from China, India, and South Africa, respectively.⁸⁶ This potentially substantial impact on trade flows illustrates the significant leverage that could be exerted using BCAs to incentivize climate action in other jurisdictions.

Indeed, using an economic model, Lessmann, Marschinski, and Edenhofer show that there is significant potential to raise participation in international environmental agreements through trade sanctions.⁸⁷ Further, using a political game theory model, Helm, Hepburn, and Ruta show that there are strong incentives for countries whose exports are subject to BCAs to respond with domestic climate action, either in the form of BCAs on their own exports or even with comprehensive domestic carbon pricing.⁸⁸ Similarly, Böhringer, Carbone, and Rutherford use an economic model in combination with a policy game to explore the role of BCAs in inducing free-riding countries to take domestic climate action.⁸⁹ They find that the use of BCAs is credible and could lead major emitters, such as China and Russia, to adopt binding abatement targets in response to BCAs, thus reducing the global welfare cost of reducing global emissions.⁹⁰

Besides the intention to avoid BCAs imposed by others, there are also more indirect economic effects at play. Jurisdictions subject to BCAs may, for trade reasons, be dependent on the economic performance of those imposing them, and BCAs lessen the economic burden of reducing emissions for those using them.⁹¹ Furthermore, when jurisdictions that

⁸⁵ See Kathryn Harrison, "International Carbon Trade and Domestic Climate Politics" (2015) 15:3 Global Environmental Politics 27 at 37.

⁸⁶ Giles Atkinson et al, "Trade in 'Virtual Carbon': Empirical Results and Implications for Policy" (2011) 21:2 Global Environmental Change 563.

⁸⁷ Kai Lessmann, Robert Marschinski & Ottmar Edenhofer, "The Effects of Tariffs on Coalition Formation in a Dynamic Global Warming Game" (2009) 26:3 Economic Modelling 641.

⁸⁸ Helm, Hepburn & Ruta, *supra* note 81 at 388.

⁸⁹ Böhringer, Carbone & Rutherford, *supra* note 68.

⁹⁰ *Ibid* at 31.

⁹¹ *Ibid*.

take domestic climate action in response to BCAs are the source of low-cost abatement opportunities, the global welfare cost of reducing emissions declines, which improves the overall efficiency of the global economy.⁹² Jurisdictions subject to BCAs can benefit from both of these effects indirectly.

As a result, BCAs can increase the pressure for domestic carbon-pricing initiatives to be adopted, without the need for global climate action.⁹³ At the same time, this could eventually lead to more international climate action by helping build a broader coalition of interests that supports such action.⁹⁴ In this sense, BCAs could in fact be a potential game changer to break the gridlock in the international climate negotiations.⁹⁵ Alternatively, with more domestic climate action being taken in response, BCAs could substitute or at least complement the global climate negotiations under the auspices of the United Nations.⁹⁶

To sum up, BCAs could be used as a “stick” to prod other jurisdictions to take climate action by implementing their own climate policies or by joining international efforts to cut emissions. As Helm, Hepburn, and Ruta put it, BCAs “provide a pragmatic way of gradually expanding the ‘coalition of the willing,’ without having to wait for a top-down global treaty.”⁹⁷ Given the current gridlock in global climate negotiations, BCAs could even be seen as the only way of making substantial progress on mitigating climate change in the near future.⁹⁸

2.3 Potential Barriers to BCAs

Although BCAs offer the promise of economic, environmental, and political benefits, there are also a number of concerns about these measures. This part discusses the potential

⁹² *Ibid.*

⁹³ Helm, Hepburn & Ruta, *supra* note 81 at 391.

⁹⁴ *Ibid* at 370.

⁹⁵ *Ibid* at 382.

⁹⁶ *Ibid.*

⁹⁷ *Ibid* at 392.

⁹⁸ *Ibid.*

barriers to adopting and implementing BCAs, which form the hypotheses that are tested empirically in the case studies in chapters 3 to 6.

The discussion addresses the ability of BCAs to comply with WTO law or other legal provisions (section 2.3.1), practical concerns about the administrative complexity of BCAs and their effectiveness in achieving their potential benefits (section 2.3.2), fears of repercussions for international relations (section 2.3.3), preferences among policy-makers and stakeholders for alternative measures (section 2.3.4), and domestic political opposition that outweighs political demand for BCAs due to negative economic impacts from these measures or due to industry stakeholders opposing BCAs for strategic reasons (section 2.3.5).

2.3.1 Concerns about WTO Law or Other Legal Limitations

One question that arises routinely in the context of BCAs is whether such measures are compliant with the rules of the WTO. The WTO provides a rule-based framework for international trade. Broadly speaking, WTO rules regulate international trade in goods and services, and trade-related aspects of intellectual property rights. Aiming to promote non-discrimination in international trade, WTO law effectively constrains policy-makers in their design of domestic policies that affect international trade. As BCAs regulate international trade flows, they are subject to WTO law.⁹⁹

For trade in goods, WTO members undertake to abide by the most-favoured-nation and national-treatment principles of the General Agreement on Tariffs and Trade (GATT). The former, enshrined in Article I of the GATT, seeks to prevent discrimination between trading partners, while the purpose of the latter, codified in Article III of the GATT, is to ensure non-discrimination between imported and domestic goods.¹⁰⁰ At the same time, WTO law foresees room for deviating from these general principles as long as WTO members comply

⁹⁹ For a comprehensive overview of international trade regulation under the WTO, see e.g. Thomas Cottier & Matthias Oesch, *International Trade Regulation: Law and Policy in the WTO, the European Union and Switzerland - Cases, Materials and Comments* (London: Cameron May, 2005).

¹⁰⁰ See e.g. *ibid* at 346-347, 382.

with the exceptions under Article XX of the GATT. Under this provision, exceptions are possible, for example, for trade measures “necessary to protect human, animal or plant life or health” (paragraph b) or “relating to the conservation of exhaustible natural resources” (paragraph g), provided that they also meet the requirements of the provision’s introductory paragraph, or “chapeau,” which seeks to prevent the abuse or misuse of these exceptions.¹⁰¹

On the one hand, legal scholars hold that the WTO-compliant design of BCAs is possible. Furthermore, even if BCAs were to be found illegal by a WTO panel, the legal consequences are relatively limited. On the other hand, significant legal uncertainties do exist, and the design of WTO-compliant BCAs is not trivial. In addition, although contrary to expert opinion, policy-makers might believe that BCAs would not survive a WTO challenge and be unaware of the relatively limited legal consequences of a WTO violation. Therefore, WTO law may pose a barrier to adopting and implementing BCAs after all. In addition to concerns about WTO law, other legal limitations may exist that could also act as barriers, such as conflicts of BCAs with constitutional law.

Although relevant case law is relatively limited, leading WTO law experts indicate that BCAs can be designed to be WTO-compliant. Charnovitz, for instance, points out that, contrary to popular misconception, BCAs are not illegal *per se* under WTO rules and notes that such measures may be justified under the exceptions of Article XX of the GATT.¹⁰² Equally, Low, Marceau, and Reinaud hold that many climate policy measures may lead to *prima facie* GATT violations but highlight that the WTO provides policy space for such measures through the exceptions of Article XX GATT.¹⁰³ Indeed, they argue that WTO jurisprudence expanded the scope of Article XX over time precisely to justify public policies that would otherwise be inconsistent with the basic GATT rules.¹⁰⁴ Bodansky, Bunnee, and Rajamani also see room for WTO law to accommodate domestic climate policies,

¹⁰¹ See e.g. *ibid* at 428-466.

¹⁰² Steve Charnovitz, “The Law of Environmental ‘PPMs’ in the WTO: Debunking the Myth of Illegality” (2002) 27:1 *The Yale Journal of International Law* 59 at 101, 110.

¹⁰³ Patrick Low, Gabrielle Marceau & Julia Reinaud, “The Interface between the Trade and Climate Change Regimes: Scoping the Issues” (2012) 46:3 *Journal of World Trade* 485 at 506, 516.

¹⁰⁴ *Ibid* at 516.

particularly under Article XX GATT.¹⁰⁵ Also Epps and Green confirm that BCAs may be designed so as to be compatible with WTO rules.¹⁰⁶ Pauwelyn asserts that, if necessary, such measures may be justified under the exceptions of Article XX GATT, but goes further by arguing that such measures can pass WTO muster even without recourse to this provision as long as they are designed carefully.¹⁰⁷

What is more, even if BCAs were to be found illegal by a WTO panel, the only remedy necessary would be to change the domestic legislation, since no damages are due for past harm.¹⁰⁸ From a legal point of view, therefore, BCAs could be included in domestic climate policies and, in case they are found inconsistent, the WTO member having imposed the BCA would essentially get a second chance to amend the measure and render it WTO-compliant.¹⁰⁹ In other words, even if a trade measure is not WTO-compliant initially, it can be amended so as to bring it in line with WTO rules. In fact, this was the case in the famous shrimp-turtle dispute. In this case, a trade measure taken by the US that was initially found to violate Article XX, was subsequently revised by the US, and then confirmed to be in compliance with Article XX.¹¹⁰

Where non-compliance persists, the WTO may authorize trade sanctions for enforcement.¹¹¹ However, in practice, a WTO member in violation can “decide to maintain its legislation and instead pay trade compensation or accept similar trade restrictions imposed by other, complaining WTO members.”¹¹² Even if significant countermeasures were imposed

¹⁰⁵ Daniel Bodansky, Jutta Brunnée & Lavanya Rajamani, *International Climate Change Law* (Oxford: Oxford University Press, 2017) at 340-341.

¹⁰⁶ Epps & Green, *supra* note 79 at 122.

¹⁰⁷ Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 505-506.

¹⁰⁸ *Ibid* at 455-456.

¹⁰⁹ *Ibid* at 456.

¹¹⁰ See *United States – Import Prohibition of Certain Shrimp and Shrimp Products* (1998), WTO Doc WT/DS58/AB/R (Appellate Body Report) [*Shrimp-Turtle AB Report*]; *United States – Import Prohibition of Certain Shrimp and Shrimp Products – Recourse to Article 21.5 of the DSU by Malaysia* (2001), WTO Doc WT/DS58/AB/RW (Appellate Body Report).

¹¹¹ Michael Trebilcock, *Understanding Trade Law* (Cheltenham: Edward Elgar, 2011) at 28.

¹¹² Joost Pauwelyn, “Testimony Before the Subcommittee on Trade of the House Committee on Ways and Means” (24 March 2009), online: United States House Committee on Ways and Means <<http://waysandmeans.house.gov/>> at 17 [Pauwelyn, “Testimony”]; also Joel P Trachtman, “WTO Law

by others, a WTO member in violation might choose to endure the sanctions where upholding the BCA is particularly politically salient.¹¹³ For instance, in the long-standing hormone-treated beef dispute, the EU was found to be in violation of WTO rules,¹¹⁴ but instead of withdrawing its trade measure, the EU first decided to suffer retaliatory trade restrictions by the US for years and later offered the US more market access in another trading area, which ended the dispute.¹¹⁵ Similarly, in a dispute concerning online gambling services in Antigua and Barbuda, the US was found to be in violation of WTO rules,¹¹⁶ but although the WTO subsequently authorized Antigua and Barbuda to retaliate, the US has maintained its legislation.¹¹⁷ Arguably, WTO members with smaller economies may be less likely to maintain their non-compliant legislation vis-à-vis large trading partners. Nevertheless, particularly for WTO members with large economies, even a repeated finding that a WTO member is in violation is no guarantee for a trade measure to be repealed. Indeed, “the WTO does not have the power to force its members to effectively change their legislation.”¹¹⁸

Furthermore, irrespective of the legal merits of a WTO challenge, the parties involved in a potential dispute may have political reasons not to challenge a BCA at the WTO in the first place.¹¹⁹ Depending on the specific interests at stake in a particular case, a risk assessment

Constraints on Border Tax Adjustment and Tax Credit Mechanisms to Reduce the Competitive Effects of Carbon Taxes” (2016) Resources for the Future, Discussion Paper 16-03 at 1-2.

¹¹³ Epps & Green, *supra* note 79 at 166; also Fouré, Jean, Houssein Guimbard & Stéphanie Monjon, “Border Carbon Adjustment in Europe and Trade Retaliation: What Would Be the Cost for European Union?” (2013) CEPII, Working Paper 2013-34, who show that countries using BCAs might prefer to suffer WTO-sanctioned penalties over rescinding their BCAs because the penalties would likely be relatively small; Trachtman, *supra* note 112 at 42, who calls such a strategy “civil disobedience” or “efficient breach.”

¹¹⁴ See *European Communities – Measures Concerning Meat and Meat Products (Hormones)* (1998), WTO Doc WT/DS26/AB/R, WT/DS48/AB/R (Appellate Body Report).

¹¹⁵ Pauwelyn, “Testimony”, *supra* note 112 at 17-18; World Trade Organization, *Dispute DS26*, online: WTO <<https://www.wto.org/>> (retrieved 16 March 2015).

¹¹⁶ See *United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services* (2005), WTO Doc WT/DS285/AB/R (Appellate Body Report).

¹¹⁷ See Pauwelyn, “Testimony”, *supra* note 112 at 18; World Trade Organization, *Dispute DS285*, online: WTO <<https://www.wto.org/>> (retrieved 16 March 2015).

¹¹⁸ Pauwelyn, “Testimony”, *supra* note 112 at 18.

¹¹⁹ See e.g. Thomas Cottier et al, “Differential Taxation of Electricity: Assessing the Compatibility with WTO Law, EU Law and the Swiss-EEC Free Trade Agreement” (2014) World Trade Institute, Universität Bern at 78; Thomas Cottier et al, “CO2 Levies and Tariffs on Imported Electricity: Assessing the Compatibility of Options

may reveal political impediments that could deter a WTO member from launching a challenge. Thus, any decision to challenge a BCA at the WTO is likely to be taken not only from a legal and economic perspective, but also from a political point of view.

To recap, BCAs can be designed to be WTO-compliant and the legal consequences of a WTO violation are relatively limited, since no damages are due for past harm and because a WTO member in violation could in practice maintain its BCA. In addition, a political risk assessment might deter a WTO member from challenging a BCA in the first place.

Despite these assurances, and as acknowledged by legal scholars, significant legal uncertainties do exist regarding the compliance of BCAs with WTO rules.¹²⁰ This stems from the fact that the current WTO rules have not been developed with climate change and domestic climate policies in mind.¹²¹ Furthermore, relevant case law is limited and concerns only certain legal questions while leaving open others. This, as Low, Marceau, and Reinaud put it, “sometimes leads to legal awkwardness.”¹²²

To take one example, the GATT’s Working Party report on border tax adjustments made it clear that border adjustment is only allowed for indirect taxes, i.e. when levied on products, and not producers.¹²³ Direct taxes, such as payroll taxes, taxes on income, or taxes on profit, which are imposed on producers, are not eligible for border adjustment. The distinction between direct and indirect taxes was originally based on economic theory and, although the economic basis for this distinction has since been called into question, it remains legally relevant.¹²⁴ The question of whether a price on emissions released during the production of a

with WTO Law, EU Law and the Free Trade Agreement Switzerland–EEC” (2014) World Trade Institute, Universität Bern at 74-75.

¹²⁰ Epps & Green, *supra* note 79 at 139; Charles E McLure, “The GATT-Legality of Border Adjustments for Carbon Taxes and the Cost of Emissions Permits: A Riddle, Wrapped in a Mystery, Inside an Enigma” (2011) 11:4 Florida Tax Review 221 at 291 [McLure, “GATT-Legality”]; Daniel Bodansky & Jessica C Lawrence, “Trade and Environment” in Daniel Bethlehem et al, eds, *The Oxford Handbook of International Trade Law* (Oxford: Oxford University Press, 2009) 506 at 537.

¹²¹ Low, Marceau & Reinaud, *supra* note 103 at 487; McLure, “GATT-Legality”, *supra* note 120 at 236.

¹²² Low, Marceau & Reinaud, *supra* note 103 at 487.

¹²³ General Agreement on Tariffs and Trade, *Report by the Working Party on Border Tax Adjustments* (1970), GATT Doc L/3464, BISD 18S/97.

¹²⁴ It was initially thought that only indirect taxes, but not direct taxes, would generally be passed on to consumers, which has become recognized as inaccurate; see Patricia Birnie, Alan Boyle & Catherine Redgwell,

good qualifies as an indirect tax and is thus eligible for border adjustment is debated in the literature. Low, Marceau, and Reinaud hold that most emission charges fall on producers and are thus direct taxes that cannot be adjusted at the border.¹²⁵ Pauwelyn, however, considers such measures to be taxes “applied at least indirectly” to products.¹²⁶

Another example of legal awkwardness as a result of WTO rules having been developed prior to climate policy can be found in the issue of “process and production methods” (PPMs). Two different PPMs may be distinguished, namely physically incorporated PPMs, also known as product-related PPMs, and physically unincorporated PPMs, also known as non-product-related PPMs.¹²⁷ The first class concerns goods where the PPM leaves a physical trace in the final product, for instance products containing asbestos, whereas the second class concerns products where the PPM does not leave any physical trace in the final product, such as goods manufactured using an emissions-intensive production method. While border adjustment is generally allowed for indirect taxes on inputs that are physically incorporated in the final product, the WTO-legality of taxes on products that are physically identical although produced with different emissions-intensities is less clear.¹²⁸ From the perspective of WTO law, the distinction between different kinds of PPMs appears sensible because this regime aims to prevent unfair practices such as hidden subsidies on exports and it is difficult to verify the amount of a certain input during the production where the input is not physically incorporated in the final product.¹²⁹ From the perspective of climate policy, however, this distinction appears problematic given that the effectiveness of climate policies is contingent on the very differentiation between goods produced with different emissions-intensities.

“International Trade and Environmental Protection” in *International Law and the Environment*, 3rd ed (Oxford: Oxford University Press, 2009) 753 at 789-799; Matthew Genasci, “Border Tax Adjustments and Emissions Trading: The Implications of International Trade Law for Policy Design” (2008) 2:1 Carbon & Climate Law Review 33 at 35.

¹²⁵ Low, Marceau & Reinaud, *supra* note 103 at 499.

¹²⁶ Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 480.

¹²⁷ Low, Marceau & Reinaud, *supra* note 103 at 495.

¹²⁸ See e.g. Epps & Green, *supra* note 79 at 76; Genasci, *supra* note 124 at 35; Low, Marceau & Reinaud, *supra* note 103 at 495; McLure, “GATT-Legality”, *supra* note 120 at 256.

¹²⁹ Genasci, *supra* note 124 at 35.

In addition to legal uncertainties, designing WTO-compliant BCAs arguably cannot be accomplished without great difficulty. On the one hand, legal scholarship notes that BCAs may be construed to be compliant with WTO law in theory. On the other hand, although the literature offers no measure of the level of effort required, it illustrates the difficulty of designing WTO-compliant BCAs.

For instance, the WTO and United Nations Environment Programme's report on trade and climate change highlights that the relevance of WTO rules to domestic climate policies very much depends on the design of those policies and how they are implemented in practice.¹³⁰ Trebilcock notes that the numerous complex legal issues involved are, in part, a function of the particular design features of BCAs.¹³¹ Moore specifically cautions governments to take great care in designing BCAs,¹³² and McLure emphasizes that such measures must be designed carefully and administered fairly if they are to be compliant with WTO rules.¹³³ Most succinctly, Pauwelyn concludes that, although BCAs can be consistent with WTO rules, "[t]he devil [is] in the details."¹³⁴ Thus, because the specific design of a BCA is crucial for its ability to pass under WTO rules, such measures must be designed very carefully.

The challenge of designing WTO-compliant BCAs is further complicated by the fact that the legal literature does not offer clear guidance on whether it is easier to satisfy the basic GATT rules or the exceptions under Article XX GATT. Pauwelyn points out that the discrimination to be avoided under the chapeau of Article XX GATT is different from that under the basic GATT rules: under the latter, "products" are the subject of the discrimination to be avoided, while it is "countries where the same conditions prevail" under the former.¹³⁵ This differentiation between different kinds of discrimination makes sense because

¹³⁰ World Trade Organization & United Nations Environment Programme, *Trade and Climate Change* (Geneva: WTO & UNEP, 2009) at 142.

¹³¹ Trebilcock, *supra* note 111 at 168.

¹³² Michael O Moore, "Implementing Carbon Tariffs: A Fool's Errand?" (2011) 34:10 *The World Economy* 1679 at 1688.

¹³³ McLure, "GATT-Legality", *supra* note 120 at 293.

¹³⁴ Pauwelyn, "Carbon Leakage Measures", *supra* note 33 at 506.

¹³⁵ *Ibid* at 501.

otherwise, if these two kinds of discrimination were the same, justification under Article XX GATT would not be possible by definition as soon as discrimination was found under the basic GATT rules.¹³⁶ As a consequence, the more BCAs differentiate between jurisdictions, the more likely they would violate the most-favoured-nation principle of Article I GATT, but the more likely they would be compliant with the chapeau of Article XX GATT.

Not differentiating between jurisdictions would appear to be important for the purpose of satisfying the requirements under the chapeau of Article XX GATT. However, discrimination under WTO law may not only arise if jurisdictions in matching situations are treated differently, but also if jurisdictions in different situations are treated identically.¹³⁷ As a result, in order to avoid discrimination, policy-makers face the difficulty of having to gauge whether differential treatment between particular jurisdictions is required, permitted, or prohibited under the chapeau of Article XX GATT. What is more, the basis for making this determination is unclear, for example whether jurisdictions may be assessed based on the stringency of their domestic climate policies, their level of development, historical contribution to climate change, or a combination of these factors.¹³⁸ Therefore, the differentiation between different forms of discrimination creates a dilemma for policy-makers designing BCAs because they need to consciously choose a strategy of designing BCAs that either avoid the violation of the basic GATT rules or satisfy the requirements of Article XX GATT.¹³⁹ McLure agrees, noting that policy-makers must choose their strategy carefully because “one approach may doom the other.”¹⁴⁰

In addition to legal uncertainties and the difficulty of designing WTO-compliant BCAs, although contrary to expert opinion, policy-makers might believe that BCAs would not survive a WTO challenge and be unaware of the relatively limited legal consequences of a

¹³⁶ *Ibid.*

¹³⁷ See *Shrimp-Turtle AB Report*, *supra* note 110 at para 165.

¹³⁸ See e.g. Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 502-504.

¹³⁹ Harro van Asselt, Thomas Brewer & Michael Mehling, “Addressing Leakage and Competitiveness in US Climate Policy: Issues Concerning Border Adjustment Measures” (2009) *Climate Strategies*, Working Paper at 55, n 213; see also Susanne Droege et al, “The Trade System and Climate Action: Ways Forward Under the Paris Agreement” (2017) 13:2 *South Carolina Journal of International Law & Business* 195 at 241.

¹⁴⁰ McLure, “GATT-Legality”, *supra* note 120 at 293.

WTO violation. Such a belief could exist due to the nature of the advice that policy-makers receive from their legal counsellors.

Finally, apart from concerns about WTO law, other legal limitations may exist that could act as barriers to adopting and implementing BCAs. Such limitations could stem from potential conflicts of BCAs with domestic constitutional law. For instance, the Dormant Commerce Clause (DCC) of the US constitution prohibits discrimination in inter-state commerce, which could constrain state-level climate policies.¹⁴¹ Indeed, the extent to which California may regulate emissions that occur outside of its borders, in particular through the inclusion of electricity imports in California's cap-and-trade system,¹⁴² and the legality of such a BCA under the DCC have been the subject of academic debate.¹⁴³

To conclude, despite advice from legal scholars that the WTO-compliant design of BCAs is possible and the relatively limited legal consequences even if they are ruled invalid by the WTO, significant legal uncertainties do exist. Indeed, "an impressive number of questions remain unresolved about how far environmental regulation can go in restricting trade, and how far the trade regime can go in restricting environmental measures."¹⁴⁴ In addition, although the level of effort required is unclear, designing WTO-compliant BCAs may pose a challenge for policy-makers. They might also believe that BCAs would not survive a WTO challenge and be unaware of the relatively limited legal consequences of a WTO violation. Moreover, other legal limitations, such as conflicting constitutional law, may

¹⁴¹ See e.g. William Funk, "Constitutional Implications of Regional CO₂ Cap-and-Trade Programs: The Northeast Regional Greenhouse Gas Initiative as a Case in Point" (2009) 27:2 UCLA Journal of Environmental Law and Policy 353 at 366; Joseph Allan MacDougald, "Why Climate Law Must Be Federal: The Clash Between Commerce Clause Jurisprudence and State Greenhouse Gas Trading Systems" (2008) 40:5 Connecticut Law Review 1431.

¹⁴² For a detailed study of this case, see chapter 5.

¹⁴³ See e.g. Jim Rossi & Andrew JD Smith, "Electric Power Resource 'Shuffling' and Subnational Carbon Regulation: Looking Upstream for a Solution" (2014) 5 San Diego Journal of Climate & Energy Law 43 at 45; Thomas Alcorn, "The Constitutionality of California's Cap-and-Trade Program and Recommendations for Design of Future State Programs" (2013) 3:1 Michigan Journal of Environmental & Administrative Law 87; Patricia Weisselberg, "Shaping the Energy Future in the American West: Can California Curb Greenhouse Gas Emissions from Out-of-State, Coal-Fired Power Plants Without Violating the Dormant Commerce Clause?" (2007) 42:1 University of San Francisco Law Review 185.

¹⁴⁴ Bodansky & Lawrence, *supra* note 120 at 537.

present further obstacles. As a result, WTO law and other legal constraints could act as barriers to adopting and implementing BCAs.

2.3.2 Practical Concerns

Another barrier to BCAs could be found in practical concerns. Specifically, governments could be worried about the administrative complexity of implementing and administering BCAs (section 2.3.2.1) or about the effectiveness of BCAs in achieving their potential benefits (section 2.3.2.2).

2.3.2.1 Administrative Complexity

There could be concerns about the administrative complexity for governments to implement and administer BCAs. Assessing the emissions released during the production of an imported good can be a challenging task. These emissions may vary greatly depending on the specific production process used when manufacturing the product, and they cannot be determined based on the physical characteristics of the product.¹⁴⁵

Specifically, the emissions intensity depends on the fuels used in the production process, the energy efficiency of the production process, the emissions from processes other than the combustion of fuels, called process emissions, and any indirect emissions from the use of electricity, which requires information on the emissions intensity of the electricity generation process.¹⁴⁶ Therefore, the emissions intensity of a product varies not only by jurisdiction but also by individual installation.¹⁴⁷

¹⁴⁵ See Moore, *supra* note 132 at 1691; Peter Holmes, Tom Reilly & Jim Rollo, “Border Carbon Adjustments and the Potential for Protectionism” (2011) 11:2 Climate Policy 883 at 890.

¹⁴⁶ See World Trade Organization & United Nations Environment Programme, *supra* note 130 at 101; Moore, *supra* note 132 at 1688; Trevor Houser et al, *Leveling the Carbon Playing Field: International Competition and US Climate Policy Design* (Washington, DC: Peterson Institute for International Economics, World Resources Institute, 2008) at 75-76; Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 455.

¹⁴⁷ Houser et al, *supra* note 146 at 76; Gary Clyde Hufbauer, Steve Charnovitz & Jisun Kim, *Global Warming and the World Trading System* (Washington, DC: Peterson Institute for International Economics, 2009) at 68.

The complexity involved in assessing the emissions-intensity is especially daunting where BCAs would be imposed not only on intermediate products, such as steel, but also on final products, such as automobiles.¹⁴⁸ The administrative complexity increases further where BCAs are based on the actual emissions intensity of an imported good rather than on average values by jurisdiction or product.¹⁴⁹ Although the approximation of data may be possible, precise figures are difficult to obtain even in jurisdictions with excellent data.¹⁵⁰

Fortunately, the application of BCAs can be based on average values and be restricted to a limited number of emissions-intensive intermediate products, such as cement, steel, aluminum, and chemicals.¹⁵¹ Existing research offers pragmatic and creative solutions to address administrative complexity concerns.¹⁵² Furthermore, in the EU, the European Commission has benchmarked the emissions intensity of 52 intermediate products across the entire union for the purpose of free allocation in its cap-and-trade system.¹⁵³ Such benchmarks could also be used for the purpose of BCAs,¹⁵⁴ although they would have to be based on the emissions intensity of the worst polluters in order to provide incentives for foreign producers to reduce their emissions.¹⁵⁵ BCAs for such products would be administratively feasible also because “imports would come from a limited number of companies.”¹⁵⁶

¹⁴⁸ Houser et al, *supra* note 146 at 76; see also Christopher L Weber & Glen P Peters, “Climate Change Policy and International Trade: Policy Considerations in the US” (2009) 37:2 Energy Policy 432 at 438; Holmes, Reilly & Rollo, *supra* note 145 at 890-891.

¹⁴⁹ Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 455.

¹⁵⁰ Weber & Peters, *supra* note 148 at 438.

¹⁵¹ Moore, *supra* note 132 at 1689; Carbon Trust, “Tackling Carbon Leakage: Sector-Specific Solutions for a World of Unequal Carbon Prices” (2010) at 10-11; Susanne Dröge, “Tackling Leakage in a World of Unequal Carbon Prices” (2009) Climate Strategies at 42, 81.

¹⁵² See e.g. Mehling et al, “Designing BCAs”, *supra* note 33; see also Michael Mehling et al, “How to Design Border Carbon Adjustments that Work for the Climate” (2017) Climate Strategies, Brief.

¹⁵³ See Stefan Pauer, “Development and Application of Greenhouse Gas Performance Benchmarks in the European Union Emissions Trading Scheme” (2012) 1:3 Economics of Energy & Environmental Policy 105.

¹⁵⁴ See Stéphanie Monjon & Philippe Quirion, “How to Design a Border Adjustment for the European Union Emissions Trading System?” (2010) 38:9 Energy Policy 5199 at 5204.

¹⁵⁵ See Moore, *supra* note 132 at 1697-1698.

¹⁵⁶ Mikael Skou Andersen, “Border Adjustment With Taxes or Allowances to Level the Price of Carbon” in Mona Hymel et al, eds, *Innovation Addressing Climate Change Challenges: Market-Based Perspectives* (Cheltenham: Edward Elgar, 2018) 20 at 25.

At the same time, in jurisdictions where a large share of embodied emissions is found in imports of final products, BCAs applied to a limited number of intermediate products can capture only a relatively small share of emissions embodied in imports.¹⁵⁷ In the US, for instance, the share of emissions embodied in imports attributable to intermediate products is estimated at 26% in 2004.¹⁵⁸ Arguably, this is still a sizeable share,¹⁵⁹ and applying limited BCAs may be better than “allow[ing] the perfect to be the enemy of the good.”¹⁶⁰ Nevertheless, the informational burden for developing even such limited BCAs remains challenging.¹⁶¹

2.3.2.2 Effectiveness of BCAs in Achieving Their Potential Benefits

In addition to concerns about the administrative complexity of BCAs, there could also be doubts with respect to BCAs’ effectiveness in achieving their potential benefits. Specifically, there may be risks of avoidance through fraud and circumvention.

Arbitrageurs would have incentives to purchase products manufactured in an emissions-intensive production process and falsely label them as low-carbon products to avoid an otherwise higher charge upon import.¹⁶² Although the problem of fraudulent labelling could possibly be addressed by attempting to identify the true source of an imported product through bureaucratic means, this could be a laborious activity, particularly where the origin of a product cannot be determined based on physical characteristics alone.¹⁶³

A more serious problem could occur where other jurisdictions redirect their trade flows by exporting low-carbon products to jurisdictions imposing BCAs while retaining physically identical but carbon-intensive products for the domestic market or exporting them to

¹⁵⁷ Weber & Peters, *supra* note 148 at 438.

¹⁵⁸ Christopher L Weber & H Scott Matthews, “Embodied Environmental Emissions in U.S. International Trade, 1997–2004” (2007) 41:14 *Environmental Science & Technology* 4875.

¹⁵⁹ Weber & Peters, *supra* note 148 at 438.

¹⁶⁰ Helm, Hepburn & Ruta, *supra* note 81 at 391.

¹⁶¹ Moore, *supra* note 132 at 1689.

¹⁶² *Ibid* at 1699.

¹⁶³ *Ibid*.

jurisdictions not applying BCAs.¹⁶⁴ Evidently, circumventing BCAs by shuffling production around in this way would undercut the whole point of the exercise,¹⁶⁵ potentially offsetting all of the benefits of BCAs. However, because this risk is not quantified in the literature, the likelihood of it to materialize remains unclear.

In addition, although BCAs could be used to incentivize other jurisdictions to take climate action, their effectiveness in doing so appears uncertain. Past experience with economic sanctions to coerce other jurisdictions to change policy has a mixed track record.¹⁶⁶ Empirical research on the effectiveness of economic sanctions suggests a success rate of around one third in influencing another jurisdiction's behaviour in the desired direction, with cases less successful where jurisdictions sought more than only a modest policy change.¹⁶⁷

Furthermore, on the one hand, it may be argued that BCAs are likely to offer limited leverage to induce climate action in other jurisdictions where imports are responsible for only little of global demand of goods in a particular sector.¹⁶⁸ For instance, although demand in industrialized countries for aluminum, pulp and paper, and basic chemicals has grown between 1991 and 2005, demand for these products from emerging economies has far outpaced the former. In the case of iron and steel and cement, demand in industrialized countries has even declined in that period, while demand in the developing world has tripled.¹⁶⁹ Indeed, the developing world, particularly China, is expected to account for most of the growth in demand for goods in all of the aforementioned sectors.¹⁷⁰ Moreover, less than 3% of aluminum produced in China was exported to the US in 2005. For pulp and

¹⁶⁴ *Ibid*; Michael Jakob & Robert Marschinski, "Interpreting Trade-Related CO₂ Emission Transfers" (2013) 3:1 *Nature Climate Change* 19 at 22; see also Houser et al, *supra* note 146 at 56; Tancrède Voituriez & Xin Wang, "Getting the Carbon Price Right Through Climate Border Measures: A Chinese Perspective" (2011) 11:5 *Climate Policy* 1257 at 1258; Cosbey et al, *supra* note 33 at 18.

¹⁶⁵ Moore, *supra* note 132 at 1699.

¹⁶⁶ Houser et al, *supra* note 146 at 57.

¹⁶⁷ Gary Clyde Hufbauer et al, *Economic Sanctions Reconsidered*, 3rd ed (Washington, DC: Peterson Institute for International Economics, 2007) at 158.

¹⁶⁸ Houser et al, *supra* note 146 at 76-77; also Cosbey et al, *supra* note 33 at 11.

¹⁶⁹ Houser et al, *supra* note 146 at 53.

¹⁷⁰ *Ibid*.

paper, this share drops to 2% and is at less than 1% each for iron and steel, basic chemicals, and cement.¹⁷¹

On the other hand, however, Böhringer, Carbone, and Rutherford point out that jurisdictions targeted by BCAs may be dependent on the economic performance of those imposing them.¹⁷² Given that BCAs lessen the economic burden of reducing emissions for those jurisdictions applying them, BCAs might be successful in inducing climate action in other jurisdictions after all.¹⁷³ At the same time, these authors' policy game simulates only two major emitters to adopt binding abatement targets in response to BCAs.¹⁷⁴ Overall, therefore, it appears difficult to predict the effectiveness of BCAs to incentivize other jurisdictions to take climate action.

In conclusion, it may be challenging in practice to develop and administer BCAs and to prevent them from being circumvented by other jurisdictions. In addition, the effectiveness of BCAs in incentivizing other jurisdictions to take climate action appears uncertain. As a result, practical concerns could pose a barrier to adopting and implementing BCAs.

2.3.3 Concerns about Repercussions for International Relations

Besides WTO-related questions, concerns about other repercussions for international relations could also hinder the adoption and implementation of BCAs. Specifically, policy-makers could face fears of trade war and retaliation (section 2.3.3.1) or that BCAs could hamper international climate efforts by reducing jurisdictions' willingness to cooperate (section 2.3.3.2).

¹⁷¹ *Ibid* at 76.

¹⁷² Böhringer, Carbone & Rutherford, *supra* note 68 at 31.

¹⁷³ *Ibid.*

¹⁷⁴ *Ibid.*

2.3.3.1 Fear of Trade War and Retaliation

Policy-makers may be concerned that BCAs could lead to “retaliatory tit-for-tat trade wars.”¹⁷⁵ The tangible risk of retaliation was illustrated in 2012 when China put on hold orders worth billions of dollars from European aircraft manufacturer Airbus in response to the EU’s extension of its cap-and-trade system to international flights, which is comparable to a BCA and prompted Airbus to oppose the extension.¹⁷⁶ Moreover, BCAs for climate purposes could set a precedent for using such measures to compensate for other competitive disadvantages, such as minimum wage or health care regulations.¹⁷⁷ Thus, BCAs could lead to trade measures spiralling out of control.

Whereas a lively academic debate on BCAs has emerged in recent years, the history of global trade policy in fact shows a strong trend in the opposite direction. Superseding the protectionist policies that helped make World War II nearly inevitable,¹⁷⁸ a track record of progressive trade liberalization began at the end of this war.¹⁷⁹ Furthermore, the notion that the reduction of trade barriers promotes peace and stability has been recognized among policy-makers as early as 1944 when a high-ranking official in the US Department of State put it into words so eloquently: “Trade conflict breeds noncooperation, suspicion, bitterness.

¹⁷⁵ Jason E Bordoff, “International Trade Law and the Economics of Climate Policy: Evaluating the Legality and Effectiveness of Proposals to Address Competitiveness and Leakage Concerns” in Lael Brainard & Isaac Sorkin, eds, *Climate Change, Trade, and Competitiveness: Is a Collision Inevitable?* (Washington, DC: Brookings Institution Press, 2009) 35 at 41; also Charles E McLure, “Border Adjustments for Carbon Taxes and the Cost of Emissions Permits” in Gilbert E Metcalf, ed, *US Energy Tax Policy* (Cambridge: Cambridge University Press, 2010) 193 at 199; Jagdish Bhagwati & Petros C Mavroidis, “Is Action Against US Exports for Failure to Sign Kyoto Protocol WTO-Legal?” (2007) 6:2 *World Trade Review* 299 at 309-310; Weber & Peters, *supra* note 148 at 438; Scott Barrett, “Climate Treaties and the Imperative of Enforcement” (2008) 24:2 *Oxford Review of Economic Policy* 239 at 245.

¹⁷⁶ See Peter Marsh, Joshua Chaffin & Simon Rabinovitch, “Delay EU Carbon Levy, Says Air Industry”, *Financial Times* (11 March 2012), online: *Financial Times* <<http://www.ft.com/>>; for a detailed study of this case, see chapter 3.

¹⁷⁷ Bordoff, *supra* note 175 at 41.

¹⁷⁸ Gilbert R Winham, “The Evolution of the World Trading System – The Economic and Policy Context” in Daniel Bethlehem et al, eds, *The Oxford Handbook of International Trade Law* (Oxford: Oxford University Press, 2009) 5 at 13.

¹⁷⁹ See *ibid* at 16-21; Silvia Nenci, “Tariff Liberalisation and the Growth of World Trade: A Comparative Historical Analysis of the Multilateral Trading System” (2011) 34:10 *World Economy* 1809 at 1813-1816, who shows declining trends for tariff barriers since the end of World War II.

Nations which are economic enemies are not likely to remain political friends for long.”¹⁸⁰ Further, Nordhaus notes that “[t]he current free and open trading system is the result of hard-fought efforts to combat protectionism” and advises that BCAs “must be used with great caution.”¹⁸¹ Considering the world’s historical track record of reducing trade barriers under the GATT 1947 and, subsequently, the WTO, policy-makers could indeed be reluctant to jeopardize these hard-earned achievements.

Böhringer, Carbone, and Rutherford’s policy game, which simulates other countries’ responses to BCAs, evidences the risk of trade war and retaliation. Although they find that two major emitters would respond by adopting binding abatement targets, they also find that all other countries retaliate when exposed to BCAs.¹⁸²

Furthermore, illustrative of the potential for retaliatory action, a number of studies examine the economic impact BCAs have on other jurisdictions. These studies show that, although BCAs can protect the competitiveness of domestic industries, they lead to severe welfare and competitiveness losses for jurisdictions exposed to them. For instance, Böhringer, Balistreri, and Rutherford show that BCAs have drastic re-distributive impacts and impose a substantial burden on non-abating countries.¹⁸³ They find that, where unilateral carbon pricing in industrialized countries is not coupled with BCAs, the percentage loss of GDP in abating countries is three times higher than in non-abating countries. When adding BCAs, however, the percentage loss of GDP is shared equally between abating and non-abating countries.¹⁸⁴ Similarly, Winchester, Paltsev, and Reilly show that, compared to a scenario of unilateral climate policies without BCAs, these measures improve the welfare of

¹⁸⁰ Quoted in John H Jackson, *The World Trading System: Law and Policy of International Economic Relations*, 2nd ed (Cambridge, MA: MIT Press, 1997) at 13.

¹⁸¹ William D Nordhaus, *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World* (New Haven, CT: Yale University Press, 2013) at 257.

¹⁸² Böhringer, Carbone & Rutherford, *supra* note 68 at 31.

¹⁸³ Böhringer, Balistreri & Rutherford, *supra* note 4 at S102.

¹⁸⁴ *Ibid.*

those countries adopting them from -0.75% to -0.53% of GDP but lead to a deterioration of welfare from -0.23% to -1.41% of GDP in countries targeted by these measures.¹⁸⁵

Lanzi, Chateau, and Dellink arrive at similar results and conclude that BCAs are effective for countries taking climate action but cause severe welfare and competitiveness losses for non-acting countries.¹⁸⁶ Therefore, BCAs shift part of the burden of emissions reductions to non-acting countries.¹⁸⁷ In addition, as BCAs limit market access for developing countries, they weaken the potential of trade to support development and reduce poverty, which appears problematic from a development perspective.¹⁸⁸ As a result, the protection of competitiveness and welfare in countries adopting BCAs comes at the expense of the competitiveness and welfare in countries that are at the receiving end of these measures.¹⁸⁹ Unsurprisingly, therefore, China has rejected BCAs “[u]sing the threat of a trade war.”¹⁹⁰

2.3.3.2 Fear of Hampering International Climate Efforts

Given their potentially severe economic impacts, BCAs may not only harm trade relations but also international efforts to address climate change. Political and economic tensions between the world’s major powers make collective progress on climate mitigation

¹⁸⁵ Niven Winchester, Sergey Paltsev & John M Reilly, “Will Border Carbon Adjustments Work?” (2011) 11:1 The BE Journal of Economic Analysis & Policy 1 at 20.

¹⁸⁶ Elisa Lanzi, Jean Chateau & Rob Dellink, “Alternative Approaches for Levelling Carbon Prices in a World With Fragmented Carbon Markets” (2012) 34 Energy Economics S240 at S249.

¹⁸⁷ *Ibid.*

¹⁸⁸ Clara Brandi, “Trade and Climate Change: Environmental, Economic and Ethical Perspectives on Border Carbon Adjustments” (2013) 16:1 Ethics, Policy & Environment 79 at 85; also Julia O’Brien, “The Equity of Levelling the Playing Field in the Climate Change Context” (2009) 43:5 Journal of World Trade 1093 at 1096.

¹⁸⁹ Madanmohan Ghosh et al, “Border Tax Adjustments in the Climate Policy Context: CO₂ Versus Broad-Based GHG Emission Targeting” (2012) 34 Energy Economics S154 at S163.

¹⁹⁰ Voituriez & Wang, *supra* note 164 at 1258.

and adaptation more difficult,¹⁹¹ and BCAs could increase animosity and reduce the goodwill between jurisdictions and their willingness to find cooperative solutions to climate change.¹⁹²

BCAs may risk worsening poisonous conditions of mistrust and fuel the existing non-cooperative behaviour displayed in the international climate negotiations over the past few decades.¹⁹³ As BCAs may undermine the trust necessary for future cooperation, they could render the attainment of effective global action even more difficult than it is already.¹⁹⁴ In particular, if BCAs were to target large developing countries, such as China or India, this could bear a considerable risk with respect to the achievement of multilateral climate action because, ultimately, climate change is unlikely to be addressed effectively without these countries' involvement.¹⁹⁵

Ironically, therefore, BCAs might in fact turn out to be counterproductive for effective action on climate change.¹⁹⁶ Indeed, the risk that BCAs could negatively impact the future cooperation between jurisdictions is the potential flip side of the hoped for benefit of providing incentives for others to take climate action.¹⁹⁷

To summarize, BCAs could cause friction between jurisdictions that could escalate and lead to trade war and retaliation. Perhaps even worse, BCAs could harm cooperative efforts to the extent that effective multilateral action on climate change is precluded.

¹⁹¹ See e.g. World Economic Forum, "The Global Risks Report 2019, 14th Edition" (2019) at 6; see also Larry Elliott, "Global Tensions Holding Back Climate Change Fight, Says WEF", *The Guardian* (16 January 2019), online: The Guardian <<http://www.theguardian.com/>>.

¹⁹² Epps & Green, *supra* note 79 at 218-219.

¹⁹³ See J Timmons Roberts & Bradley C Parks, *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy* (Cambridge, MA: MIT Press, 2007) at 8; see also Susanne Droege, "Using Border Measures to Address Carbon Flows" (2011) 11:5 *Climate Policy* 1191 at 1197.

¹⁹⁴ Pauwelyn, "Carbon Leakage Measures", *supra* note 33 at 454-455; Brandi, *supra* note 188 at 89.

¹⁹⁵ Houser et al, *supra* note 146 at 56; also O'Brien, *supra* note 188 at 1096; Weber & Peters, *supra* note 148 at 438.

¹⁹⁶ O'Brien, *supra* note 188 at 1103.

¹⁹⁷ Pauwelyn, "Carbon Leakage Measures", *supra* note 33 at 454.

2.3.4 Alternative Measures

While governments may implement alternative measures as a consequence of a failure to adopt BCAs, alternative measures could also be the very cause for this failure. In other words, policy-makers and stakeholders could prefer alternative measures to pursue the potential benefits of BCAs. Because alternative measures may be less controversial and may offer other advantages, their availability could act as a barrier to the adoption and implementation of BCAs.

Several alternatives to BCAs exist that may contain costs from climate policies by other means and may be less controversial than BCAs. The availability of these mechanisms is dependent on the type of carbon-pricing instrument applied, in particular whether carbon is priced through a carbon tax or a cap-and-trade system.¹⁹⁸ Alternative measures to contain costs include free allocation of emission allowances, credits based on a compliance entity's output, state aid and tax relief (with or without the recycling of revenue from carbon-pricing instruments), flexibility mechanisms (carbon offsets, banking and borrowing), price ceilings, reductions in the scope of emissions for which a compliance entity is assessed a carbon price, weakening of mitigation targets, and exemptions from carbon pricing.¹⁹⁹

These alternatives, however, may not be able to realize all of the potential benefits of BCAs. In particular, while these alternative measures should be able to safeguard the competitiveness of industries, counter policy-induced carbon leakage, and lessen domestic political opposition – albeit to different degrees – they are unable to extend the coverage of domestic climate policies beyond that jurisdiction.²⁰⁰ In addition, they could harm the environmental effectiveness or cost-effectiveness of domestic climate policies.²⁰¹ Measures to contain costs that undermine environmental targets include exemptions, weakening of mitigation targets, and price ceilings, while cost containment measures that reduce the cost-effectiveness of climate policies include free allocation and state aid.

¹⁹⁸ Houser et al, *supra* note 146 at 15.

¹⁹⁹ See also Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 461-462; Houser et al, *supra* note 146 at 16.

²⁰⁰ See Pauwelyn, “Testimony”, *supra* note 112 at 15-16.

²⁰¹ See Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 452.

Despite the potential drawbacks of alternative cost containment measures as compared to BCAs, policy-makers may, depending on their specific needs and preferences, view alternative measures as being sufficient or perhaps even more suitable for their purposes. Free allocation of emission allowances, in particular, may offer policy-makers important political advantages. Free allocation allows regulated industries to enjoy economic rents and enables policy-makers to control the distributional impacts under a cap-and-trade system.²⁰² Indeed, while the choice between auctioning and free allocation does not change the price impacts for consumers due to the opportunity cost associated with free allowances, freely allocated allowances do not need to be purchased and thus amount to a lump sum transfer from governments to regulated industries.²⁰³

Seeking to secure these rents, domestic industry stakeholders may prefer to support the use of free allocation, although the literature appears to be sparse on the factors that underlie stakeholder preferences with regards to free allocation versus BCAs. Particularly stakeholders that would experience negative economic impacts from BCAs, such as importers of emissions-intensive intermediate products, may prefer free allocation.²⁰⁴ The economic rents from free allocation constitute foregone government revenue from auctioning; put differently, they are granted at the expense of the general taxpaying public.²⁰⁵ Conversely, when using BCAs, as long as any rebates on exports do not exceed the proceeds from BCAs on imports, governments would be able to raise revenue. Despite, or perhaps due to, this difference between BCAs and free allocation in raising and foregoing revenue, respectively, the latter may enjoy considerable political appeal among policy-makers. Further, although free allocation and BCAs are not mutually exclusive in principle, it may be difficult in practice for stakeholders to make a case vis-à-vis policy-makers for using both of

²⁰² Lawrence H Goulder & Ian W H Parry, “Instrument Choice in Environmental Policy” (2008) 2:2 Review of Environmental Economics and Policy 152 at 164; Nathaniel O Keohane, “Cap and Trade, Rehabilitated: Using Tradable Permits to Control U.S. Greenhouse Gases” (2009) 3:1 Review of Environmental Economics and Policy 42 at 45.

²⁰³ Steven Sorrell & Jos Sijm, “Carbon Trading in the Policy Mix” (2003) 19:3 Oxford Review of Economic Policy 420 at 422-423.

²⁰⁴ For details on opposition from importers of emissions-intensive intermediate products, see section 2.3.5, below.

²⁰⁵ Goulder & Parry, *supra* note 202 at 164.

these cost containment measures. In order to avoid overcompensating the regulated industries, policy-makers would face the difficult task of having to calibrate the levels of free allocation and a BCA.²⁰⁶

While the aforementioned alternative measures cannot incentivize other jurisdictions to implement their own climate policies or join international efforts to cut emissions, other alternatives exist that could provide such incentives in a positive rather than negative way as with BCAs. For instance, domestic emissions reduction targets can be made conditional upon climate action taken by other jurisdictions. As part of its climate targets for 2020, the EU has promised additional emissions reductions in case an international agreement is concluded to cut emissions.²⁰⁷ Similarly, the EU agreed a minimum emissions reduction target for 2030 that was reviewed after the 2015 climate summit in Paris.²⁰⁸ Furthermore, the conclusion of trade agreements could be made conditional upon domestic climate action.²⁰⁹ Other examples of positive inducements include technical assistance, capacity building, technology transfers, increased investment, foreign aid, and debt forgiveness.²¹⁰ Thus, conditional emissions reduction targets and other inducements could be used as “carrots” that may provide positive incentives without the need for negative “stick”-type measures to prod other jurisdictions to take climate action.²¹¹

In summary, policy-makers and stakeholders could prefer alternative measures to pursue the potential benefits of BCAs that are less controversial and offer other advantages. Indeed, less controversial measures exist to contain costs and incentivize other jurisdictions to take

²⁰⁶ Harro van Asselt & Thomas Brewer, “Addressing Competitiveness and Leakage Concerns in Climate Policy: An Analysis of Border Adjustment Measures in the US and the EU” (2010) 38:1 Energy Policy 42 at 47.

²⁰⁷ Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 462.

²⁰⁸ “EU Leaders Set 2030 Climate, Energy Targets”, *ENDS Europe* (24 October 2014), online: ENDS Europe <<http://www.endseurope.com/>>.

²⁰⁹ See EU, European Commission, “Feedback and Way Forward on Improving the Implementation and Enforcement of Trade and Sustainable Development Chapters in EU Free Trade Agreements” (26 February 2018), Non-Paper at 10; see also Karl Mathiesen, “EU Says No New Trade Deals With Countries Not In Paris Agreement”, *Climate Home News* (2 February 2018), online: Climate Home News <<https://www.climatechangenews.com/>>.

²¹⁰ Epps & Green, *supra* note 79 at 177.

²¹¹ Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 462.

climate action. Therefore, policy-makers could use these alternatives in lieu of BCAs. As a result, the availability of alternative measures could present a barrier to adopting and implementing BCAs.

2.3.5 Domestic Political Opposition

Another barrier to BCAs could be found in domestic political opposition that is significant enough to prevent such measures from being adopted or implemented. Opposition could come from organized stakeholder groups, such as various industry associations and NGOs. While EITE industries, on aggregate, are expected to support BCAs due to these measures' ability to afford protection against foreign competition,²¹² there could in fact be losers who experience negative economic impacts from BCAs and thus oppose such measures. In addition, where BCAs are proposed as part of an initial introduction of domestic climate policy, industry stakeholders could form opposition for strategic reasons. Moreover, green businesses, emissions-efficient EITE producers, and NGOs could oppose BCAs on exports. As a result, political opposition could outweigh political demand for BCAs.

Böhringer, Müller, and Schneider show that, under certain conditions, BCAs can lead to significant economic disadvantages for some industries.²¹³ These authors combine multi-region input-output analysis and economic modelling to examine the impact on domestic EITE industries of complementing unilateral carbon pricing in industrialized countries with BCAs on imports only.²¹⁴ They find that BCAs may not necessarily be beneficial for all domestic EITE industries.²¹⁵

EITE industries whose emissions-intensity stems from a high share of emissions-intensive imports could suffer from BCAs due to the increased costs for these imports.²¹⁶ For instance, the carbon content of the chemical products and non-ferrous metals sectors in

²¹² See sections 2.2.1 and 2.2.3, above.

²¹³ Christoph Böhringer, André Müller & Jan Schneider, "Carbon Tariffs Revisited" (2014) University of Oldenburg, Discussion Paper V-364-14.

²¹⁴ See *ibid* at 2-3.

²¹⁵ *Ibid* at 19.

²¹⁶ *Ibid* at 2.

Switzerland stems to around 65% and 90% from imported emissions, respectively.²¹⁷ In addition to this input-related factor, unless they are subject to rebates upon export,²¹⁸ export-oriented companies or sectors could face a further cost-disadvantage on foreign markets because of BCAs.²¹⁹ This is because BCAs on imports level the playing field on the domestic market, but they lead to a cost-disadvantage for industries competing in markets abroad.²²⁰ For example, supplying on aggregate around 75% of output to foreign markets, Switzerland's EITE industries are particularly export-oriented, with the largest two sectors of chemical products and non-ferrous metals standing out with around 90% of each sector's output destined for markets abroad.²²¹

As a result of these two driving factors, Böhringer, Müller, and Schneider find that EITE industries in Switzerland shrink, on average, by more than 15 percentage points when supporting domestic carbon pricing with a BCA on imports only, with the country's non-ferrous metals sector experiencing a dramatic output loss of more than 40 percentage points.²²² The authors find similar results for the non-ferrous metals sectors in Norway and Canada, which would face output losses of almost 50 and 10 percentage points, respectively.²²³

While Böhringer, Müller, and Schneider focus on EITE industries, their findings also apply to non-EITE industries that import emissions-intensive intermediate products. For example, sectors specializing in the assembly of emissions-intensive intermediate products, such as the manufacture of electronics, automobiles, or other machinery, could experience a "knock-on effect" from BCAs on imports due to the increased costs for imported intermediate products.²²⁴

²¹⁷ *Ibid* at 8.

²¹⁸ See *ibid* at 18.

²¹⁹ *Ibid* at 2.

²²⁰ *Ibid*.

²²¹ *Ibid* at 8-9.

²²² *Ibid* at 14.

²²³ *Ibid* at 18.

²²⁴ Andersen, *supra* note 156 at 28.

Therefore, BCAs' ability to protect the competitiveness of domestic industries is contingent on an industry's reliance on imports of emissions-intensive inputs, its share of domestic output that is supplied to the export market, and the specific design of a BCA. In the worst case, BCAs on imports only "can drastically exacerbate adverse production impacts of unilateral emission pricing for those EITE industries that have a strong export market orientation and import a large share of embodied carbon."²²⁵ Thus, certain companies or sectors may oppose BCAs.

In addition, where BCAs are proposed as part of an initial introduction of domestic climate policy, industry stakeholders could form opposition even if they were to benefit from BCAs compared to a policy design without such protection. Industry stakeholders might pursue this strategy in an effort to block or weaken looming climate policy. Only once this effort is exhausted, their focus may shift towards securing beneficial cost containment measures as a second line of defence. Put differently, where domestic climate policy is introduced for the first time, outright support of BCAs would amount to an implicit acceptance of the looming climate policy.

Moreover, some domestic stakeholders could oppose export rebates. Green businesses, such as renewable energy producers, and emissions-efficient EITE producers may seek to prevent less efficient domestic producers from obtaining a competitive advantage on foreign markets. Further political opposition to BCAs on exports may come from NGOs. Since rebating exports effectively exempts goods produced for export from domestic climate policy, BCAs on exports undermine the environmental effectiveness of such policies.²²⁶ In other words, because exporting a good does not undo the environmental impact created during its production, BCAs on exports can be considered environmentally perverse.²²⁷ Although rebating exports may be used to avoid double carbon pricing vis-à-vis jurisdictions

²²⁵ Böhringer, Müller & Schneider, *supra* note 213 at 19.

²²⁶ See Epps & Green, *supra* note 79 at 131.

²²⁷ Hufbauer, Charnovitz & Kim, *supra* note 147 at 69; also Sofia Persson, "Practical Aspects of Border Carbon Adjustment Measures: Using a Trade Facilitation Perspective to Assess Trade Costs" (2010) International Centre for Trade and Sustainable Development, Issue Paper 13 at 5.

applying their own BCAs on imports,²²⁸ this rationale is currently not applicable given the absence of BCAs in practice.²²⁹ Therefore, NGOs are unlikely to support BCAs on exports, unless they are necessary to overcome opposition to an initial introduction of domestic climate policy.

Stakeholders representing companies or sectors that would lose out under BCAs or oppose them for strategic reasons can be expected to be the more influential the more severe the adverse economic impacts.²³⁰ Further, the ability of both industry and environmental interest groups to influence policy-makers is aided where public opinion aligns with their interests and where the institutional environment offers multiple veto points to block policy proposals. Policy-makers may have several reasons for seeking to avoid political opposition. In particular, they may follow their self-interest in retaining their positions in government,²³¹ or they may seek to avoid antagonizing influential stakeholders whose support they might need in the context of other policy initiatives.

In sum, although BCAs may be able to protect some domestic EITE industries, not all domestic companies or sectors are expected to benefit in the same way, or at all, from BCAs. In fact, some domestic industries could suffer significantly from BCAs. In addition, industry stakeholders could form opposition for strategic reasons where BCAs are proposed as part of an initial introduction of domestic climate policy. Furthermore, green businesses, emissions-efficient EITE producers, and NGOs could oppose BCAs that include export rebates. As a result, political opposition to BCAs could, on balance, be greater than political demand for these measures.

2.4 Discussion

Having set out both the potential benefits of BCAs and the potential barriers to adopting and implementing them, this part discusses these measures from a theoretical perspective.

²²⁸ Hufbauer, Charnovitz & Kim, *supra* note 147 at 69.

²²⁹ See Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 456, 459-461.

²³⁰ See section 2.2.3, above.

²³¹ Harrison & Sundstrom, *supra* note 71 at 8.

Table 1 offers an overview of the potential benefits and barriers of BCAs reviewed above. When assessing the literature, it appears that no obvious answer can be given in favour of or against these measures. Indeed, the anticipated costs and risks of BCAs need to be carefully weighed against their expected benefits.²³²

Table 1: Potential benefits of and barriers to BCAs

Potential benefits of BCAs
Safeguarding competitiveness
Reducing loss of jobs
Countering carbon leakage (policy-induced, and demand-driven)
Lessening domestic political opposition
Incentivizing others to take climate action
Potential barriers to BCAs
Legal concerns (WTO, and others)
Practical concerns (administrative complexity, and effectiveness)
Repercussions for international relations (trade war and retaliation, and hampering international climate efforts)
Alternative measures
Domestic political opposition

Arguably, the most significant benefit of BCAs could stem from their ability to counter carbon leakage. This concerns both policy-induced carbon leakage, although its actual extent is somewhat uncertain, and especially demand-driven carbon leakage, which growing evidence shows may in fact be the more serious leakage problem of the two. The extension of domestic climate policies beyond the domestic domain, in particular, is a benefit that alternative measures cannot replicate.

²³² See Pauwelyn, “Carbon Leakage Measures”, *supra* note 33 at 455.

While BCAs could reduce domestic opposition to climate policies, so can other cost containment measures, such as free allocation or output-based tax credits. Nevertheless, BCAs may be a valuable cost containment measure where alternatives would compromise the environmental effectiveness of a climate policy, for example in the case of exemptions or weakening of mitigation targets.

Although it might be possible to incentivize other jurisdictions to take climate action by using BCAs as a “stick,” success is not at all certain and, also here, less controversial alternatives exist, namely conditional mitigation targets and other “carrots,” even if their effectiveness may be equally uncertain. Further, the potential backlash from BCAs could be severe, specifically when leading to trade war and retaliation and the destruction of valuable goodwill between jurisdictions, which could preclude multilateral solutions to climate change altogether.

Designing WTO-compliant BCAs does not appear to be a trivial exercise, but doing so may be important to policy-makers if they seek to avoid repercussions for international relations, despite the fact that the legal consequences of a WTO violation are relatively limited.

Although implementing and administering BCAs may be challenging, many of the practical difficulties raised could be overcome. In addition, alternative measures may pose similar challenges depending on their specific design, for instance in case free allocation is based on the emissions intensity of products. However, a more serious concern and potential Achilles heel of BCAs may be encountered if jurisdictions exposed to BCAs were to respond with the redirection of trade flows to circumvent these measures. While the likelihood of this risk is uncertain, it could potentially prevent most or all of the benefits of BCAs from materializing.

All of these considerations may be of secondary importance, however, if policy-makers in a particular jurisdiction fail to garner wide stakeholder support for BCAs due to domestic opposition to these measures. Stakeholders’ attitudes towards BCAs appear to depend on both the particular policy setting and the specific design of these measures.

In light of these considerations, BCAs may be particularly appealing to policy-makers aiming to furnish their domestic climate policies with a high degree of environmental

effectiveness. This is due to the ability of BCAs to counter carbon leakage and extend the environmental reach of climate policies beyond the domestic domain, the latter of which no alternative measure can achieve. In addition, BCAs could avoid alternative measures that are less environmentally effective.

Where environmental effectiveness objectives are not in the foreground, however, policy-makers may turn to alternative measures that are less controversial and offer other advantages, while avoiding the risks of BCAs. In jurisdictions where policy-makers are put off by the risk of repercussions for international relations, BCAs are likely to play a small role in the portfolio of climate policy instruments.

Ultimately, whether the potential benefits of BCAs outweigh their risks depends on the specific circumstances and constraints that policy-makers face in a particular policy setting. However, the barriers, which may compound, could be difficult to overcome, especially given the uncertainties of the potential benefits and the risk of international backlash.

Nevertheless, in the continued absence of either effective multilateral solutions to climate change or adequate sub-global initiatives to curb global emissions, BCAs' potential benefit of incentivizing other jurisdictions to take climate action may carry increasing weight in the future. Therefore, the question may in fact be whether the risks of BCAs outweigh the risks from continued inaction on climate change. As long as this question is answered in the affirmative, BCAs may continue to occupy a niche in domestic climate policies in practice.

2.5 Conclusion

The conspicuous absence of BCAs in practice has raised the question of what barriers there may be to their adoption and implementation. This chapter has examined both the potential benefits of BCAs and the potential barriers to their adoption and implementation.

While there are potentially significant benefits from enhancing domestic climate policies with BCAs, there are also a number of concerns about these measures. On the one hand, BCAs offer the promise of economic, environmental, and political benefits. In protecting the competitiveness of domestic industries relative to peers in jurisdictions with more lenient standards, such measures could avoid negative economic consequences, increase

environmental benefits by countering carbon leakage, and, in doing so, build greater political support for domestic carbon pricing or regulation. What is more, BCAs may even incentivize other jurisdictions to implement their own climate policies or join international efforts to cut emissions.

On the other hand, there may also be questions about the ability of BCAs to comply with WTO law or other legal provisions, practical concerns about the administrative complexity of BCAs and their effectiveness in achieving their potential benefits, fears of repercussions for international relations, preferences among policy-makers and stakeholders for alternative measures, and domestic political opposition to BCAs.

Based on the extant literature, BCAs may be particularly appealing to policy-makers aiming to furnish their domestic climate policies with a high degree of environmental effectiveness. Where environmental effectiveness objectives are not in the foreground, however, policy-makers may turn to alternative measures that are less controversial and offer other advantages, while avoiding the risks of BCAs. Although the choice to apply BCAs depends on the specific circumstances and constraints that policy-makers face in a particular policy setting, the barriers to BCAs may be difficult to overcome.

This chapter identified a number of potential barriers to adopting and implementing BCAs. In order to explore the degree to which each of them has been relevant in practice, these hypotheses are tested empirically in the four case studies that follow in chapters 3 to 6. The first case study, examined in the next chapter, concerns the inclusion of the aviation sector in the EU ETS.

3 The Inclusion of International Flights in the European Union Emissions Trading System

3.1 Introduction

This chapter examines the inclusion of international flights in the EU Emissions Trading System (ETS). This case offers a rare example of an adopted domestic climate policy that is comparable to a BCA. In 2008, the EU passed a law to include the aviation sector in the EU ETS from 2012 onwards. In terms of geographical scope, the policy was to cover both flights within the European Economic Area (EEA)¹ and international flights, i.e. flights between the EEA and third countries.² In 2013, however, the EU effectively exempted international flights from the EU ETS dating back to the launch of the system. The EU subsequently extended this derogation on two separate occasions and it is currently effective until the end of 2023. Therefore, unlike intended originally, the system never effectively covered international flights in addition to flights within the EEA. This chapter explains what happened in this case and, by testing empirically the potential barriers to BCAs set out in chapter 2, determines the factors leading to these policy outcomes, namely the initial inclusion and subsequent exemption of international flights.

The inclusion of international flights in the EU ETS is not a BCA as commonly envisioned. The measure differs from a BCA in the traditional sense in that it does not cover emissions from a manufacturing process but from the combustion of aviation fuel. At the same time, the measure is comparable to a BCA because it features the essential characteristics of a BCA.³ Similar to traditional BCAs, the policy puts flights within the EEA

¹ The EEA includes the EU Member States plus Iceland, Liechtenstein, and Norway.

² For simplicity, this chapter refers to flights between the EEA and third countries as “international flights.”

³ This conclusion is supported by the literature, which characterizes the measure either as a BCA, *de facto* BCA, measure resembling a BCA, or comparable to a BCA; see Kateryna Holzer, *Carbon-Related Border Adjustment and WTO Law* (Cheltenham: Edward Elgar, 2014) at 180-181; Joost Pauwelyn, “Carbon Leakage Measures and Border Tax Adjustments under WTO Law” in Geert Van Calster & Denise Prévost, eds, *Research Handbook on Environment, Health and the WTO* (Cheltenham: Edward Elgar, 2013) 448 at 459; Dieter Helm, Cameron Hepburn & Giovanni Ruta, “Trade, Climate Change, and the Political Game Theory of Border Carbon Adjustments” (2012) 28:2 Oxford Review of Economic Policy 368 at 369; Joshua Meltzer, “Climate Change and Trade - The EU Aviation Directive and the WTO” (2012) 15:1 Journal of International

and international flights on a level playing field by extending the carbon price under the EU ETS to all flights arriving at and departing from EEA airports. This way, the measure extends the EU ETS beyond the EU's domestic domain and covers emissions produced outside the EU's territory. Furthermore, like traditional BCAs, the policy is designed to allow the exemption of international flights from third countries that adopt their own policies to reduce the climate change impact of aviation.

The evidence shows that strong support from policy-makers for the inclusion of international flights in the EU ETS was able to overcome opposition from EU stakeholders initially. However, the emergence of vigorous international opposition during the implementation of the aviation inclusion sparked fears of trade war and retaliation that led to the subsequent exemption of international flights. The opposition from third countries consisted of a wide range of threats and retaliatory measures that included limitations for EU carriers' operations in foreign airspace, third country legislation to prevent non-EU airlines from complying with the EU ETS, and the stalling of orders worth billions of dollars from European aircraft manufacturer Airbus. Key EU stakeholders, notably Lufthansa and Airbus, successfully lobbied policy-makers to exempt international flights. While Lufthansa sought to minimize its exposure to carbon pricing under the EU ETS and to actual or potential retaliation from other countries, Airbus opposed the inclusion of international flights due to retaliation that stalled significant orders of its aircraft.

The EU's experience with the inclusion of international flights in the EU ETS shows that policy-makers may encounter significant political opposition during the implementation of a BCA, both from third countries and domestic stakeholders. This case suggests that, although adopting a BCA may be politically feasible, this may not necessarily hold true for its implementation.

Economic Law 111 at 154; Lorand Bartels, "The Inclusion of Aviation in the EU ETS: WTO Law Considerations" (2012) International Centre for Trade and Sustainable Development, Issue Paper 6 at iv; World Bank, *State and Trends of Carbon Pricing 2015* (Washington, DC: World Bank, 2015) at 79; Mikael Skou Andersen, "Border Adjustment With Taxes or Allowances to Level the Price of Carbon" in Mona Hymel et al, eds, *Innovation Addressing Climate Change Challenges: Market-Based Perspectives* (Cheltenham: Edward Elgar, 2018) 20 at 29; Aaron Cosbey et al, "Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature" (2019) 13:1 Review of Environmental Economics and Policy 3 at 4.

Interviews with 13 individuals informed this case study. This includes eight government officials, three representatives of the environmental community, one industry representative, and one academic.⁴ Eleven individuals were consulted in person in Brussels, Belgium, in October and November 2015, while two interviews were conducted over the phone in June 2016 and November 2017.

The remainder of this chapter proceeds as follows. Part 3.2 offers a chronological overview and presents the main design parameters of the inclusion of the aviation sector in the EU ETS. Parts 3.3 to 3.7 examine a number of factors to explain the policy outcomes in this case, specifically concerns about WTO law (part 3.3), practical concerns about the policy's administrative complexity or effectiveness in reducing emissions (part 3.4), a preference for alternative measures to pursue the benefits of including international flights (part 3.5), concerns about repercussions for international relations (part 3.6), or domestic political opposition (part 3.7). Part 3.8 concludes by summarizing the case study's findings.

3.2 Chronological Overview and Policy Details

In October 2004, the International Civil Aviation Organization (ICAO), which is a specialized agency of the United Nations, endorsed the concept of emissions trading for the aviation sector and requested its Council to provide guidance for incorporating the sector into domestic emissions trading systems.⁵ In September 2005, the European Commission issued a Communication on reducing emissions from aviation, in which it recommended including the sector in the EU's cap-and-trade system EU ETS.⁶ In December 2006, the European Commission tabled its legislative proposal to include the sector in the EU ETS.⁷ In November 2008, after less than two years of negotiations among EU policy-makers, the

⁴ Other industry representatives did not respond to interview requests.

⁵ ICAO, Res A35-5, ICAOOR, 35th Sess (2004).

⁶ EU, *Communication COM(2005)459 from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions of 27 September 2005 on Reducing the Climate Change Impact of Aviation* [Aviation Communication].

⁷ EU, *Proposal COM(2006)818 of the European Commission of 20 December 2006 for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community*.

Council of the EU and the European Parliament adopted the “Aviation Directive” to include the aviation sector in the EU ETS from 2012 onwards.⁸ The policy required aircraft operators to surrender emission allowances for all flights arriving at and departing from EU airports.⁹ In December 2009, the policy was extended to the entire EEA, thus also covering Iceland, Liechtenstein, and Norway.¹⁰ In terms of geographical scope, therefore, the policy was to cover both flights within the EEA and international flights, irrespective of carriers’ nationality. In fact, similar to traditional BCAs, the EU ETS was intended to apply not only to the portion of these flights that occurred over EU airspace but to the entire distance of the flight, including emissions produced while taxiing in airports outside the EEA.¹¹

Between 2009 and 2011, the European Commission adopted a series of implementing measures as mandated in the Aviation Directive.¹² The policy became effective on 1 January 2012, which meant that aircraft operators were required to surrender emission allowances for flight activity on or after that date. Importantly, in accordance with the compliance cycle of the EU ETS, the obligation to surrender emission allowances was not due before 30 April of

⁸ EU, *Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2008 Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community*, [2009] OJ, L 8/3 [Aviation Directive].

⁹ Article 3(r) of EU, *Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61/EC*, [2003] OJ, L 275/32 [EU ETS Directive].

¹⁰ EU, *Decision 93/2011 of the EEA Joint Committee of 20 July 2011 Amending Annex XX (Environment) to the EEA Agreement* [EEA Decision].

¹¹ See Annex IV, Part B of the *EU ETS Directive*, *supra* note 9.

¹² This included executive acts detailing the monitoring and reporting of aviation emissions, specifying the aviation activities covered under the system, assigning each aircraft operator to an EU Member State that is responsible for administering that aircraft operator, setting the emissions cap of the system, and defining the number of free allowances allocated to each aircraft operator. See EU, *Commission Decision 2009/339/EC of 16 April 2009 Amending Decision 2007/589/EC as Regards the Inclusion of Monitoring and Reporting Guidelines for Emissions and Tonne-Kilometre Data from Aviation Activities*, [2009] OJ, L 103/10; EU, *Commission Decision 2009/450/EC of 8 June 2009 on the Detailed Interpretation of the Aviation Activities Listed in Annex I to Directive 2003/87/EC of the European Parliament and of the Council*, [2009] OJ, L 149/69; EU, *Commission Regulation 748/2009 of 5 August 2009 on the List of Aircraft Operators Which Performed an Aviation Activity Listed in Annex I to Directive 2003/87/EC on or after 1 January 2006 Specifying the Administering Member State for Each Aircraft Operator*, [2009] OJ, L 219/1; EU, *Commission Decision 2011/389/EU of 30 June 2011 on the Union-Wide Quantity of Allowances Referred to in Article 3e(3)(a) to (d) of Directive 2003/87/EC of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowances Trading Within the Community*, [2011] OJ, L 173/13; EU, *Commission Decision 2011/638/EU of 26 September 2011 on Benchmarks to Allocate Greenhouse Gas Emission Allowances Free of Charge to Aircraft Operators Pursuant to Article 3e of Directive 2003/87/EC of the European Parliament and of the Council*, [2011] OJ, L 252/20.

the following year.¹³ Therefore, the first deadline for surrendering emission allowances to cover emissions from flights in 2012 was 30 April 2013. In fact, as will become clear from the following remarks, the aviation inclusion did not become operational the way EU policy-makers had originally intended.

As the first deadline approached for surrendering emission allowances, opposition from third countries to the aviation inclusion emerged. In May 2011, the Chinese airline association China Air Transport Association threatened to ask the Chinese government to propose countermeasures if the EU did not adjust the aviation inclusion, and Chinese government officials raised the same objections during a meeting with European Commission officials.¹⁴ In September 2011, China, India, Russia, the US, and 17 other states met in New Delhi and issued a joint declaration opposing the EU's inclusion of international flights in the EU ETS.¹⁵ In November 2011, Brazil, China, India, and South Africa – known as the BASIC countries – issued a joint statement warning that the inclusion of international flights in the EU ETS “violate[s] the principles and provisions of the [United Nations Framework Convention on Climate Change] and jeopardize[s] the effort of international cooperation in addressing climate change.”¹⁶ In the same month, 26 of the 35 members of the ICAO Council adopted a non-binding joint declaration, which was essentially the New Delhi declaration from two months earlier.¹⁷ In February 2012, China, India, Russia, the US, and 28 other states met in Moscow and issued a joint declaration demanding the EU to cease application of the Aviation Directive to third country airlines and setting out a list of possible countermeasures to be taken by these countries.¹⁸ Two months earlier, in December 2011, the Court of Justice of the EU had confirmed the validity of the Aviation Directive, dismissing a

¹³ Article 12(2a) of the *EU ETS Directive*, *supra* note 9.

¹⁴ Pete Harrison, “China Opposes EU Move to Curb Airline Emissions”, *Reuters* (10 May 2011), online: Reuters <<http://www.reuters.com/>>.

¹⁵ Argentina et al, “Joint Declaration” (New Delhi, 30 September 2011) [New Delhi Declaration].

¹⁶ Brazil et al, “Joint Statement” (Beijing, 1 November 2011) at point 15 [BASIC Statement].

¹⁷ “ICAO Council Backs Anti-ETS Declaration”, *ENDS Europe* (3 November 2011), online: ENDS Europe <<http://www.endseurope.com/>> [ENDS Europe, “ICAO Council”].

¹⁸ Armenia et al, “Joint Declaration” (Moscow, 22 February 2012) [Moscow Declaration].

legal challenge brought by the US airline association Air Transport Association of America and the US airlines American Airlines, Continental Airlines, and United Airlines.¹⁹

In this case, the court held that the aviation inclusion did not violate the principles of territoriality and sovereignty of third countries as recognized under customary international law. Specifically, the court ruled that the aviation inclusion did not apply as such to aircraft flying outside EU territory but that they were subject to the EU ETS only if operators chose to operate routes arriving at or departing from EU airports.²⁰ Because of this link to EU territory, these aircraft were subject to the EU's jurisdiction, and the EU may determine the conditions under which airlines operate flights to and from its territory.²¹ The court also noted that the fact that emissions may partly occur outside of EU territory did not call into question the full applicability of EU law in that territory.²² Lastly, the ruling confirmed that the aviation inclusion regulated operators in a non-discriminatory manner because of its uniform application to both EU airlines and those of third countries.²³

Following their expressions of opposition, foreign governments also sought to prevent their airlines from complying with the EU ETS. In February 2012, China instructed its airlines not to comply with the EU ETS.²⁴ A month later, in March 2012, India joined China in asking its airlines to boycott the EU ETS through non-compliance.²⁵ In October 2012, Saudi Arabia was understood to have ordered its national airline Saudia not to comply with

¹⁹ *Air Transport Association of America and Others v Secretary of State for Energy and Climate Change*, C-366/10, [2011] ECR I-13833 [*ATA and Others*]; "EU Wins ETS Court Case Against US Airlines", *ENDS Europe* (21 December 2011), online: [ENDS Europe](http://www.endseurope.com/) <<http://www.endseurope.com/>>.

²⁰ *ATA and Others*, *supra* note 19 at paras 122, 127.

²¹ *Ibid* at para 128.

²² *Ibid* at para 129.

²³ *Ibid* at paras 154-156.

²⁴ "China Tells Airlines Not to Comply with ETS", *ENDS Europe* (6 February 2012), online: [ENDS Europe](http://www.endseurope.com/) <<http://www.endseurope.com/>> [*ENDS Europe*, "China Tells Airlines"].

²⁵ Anurag Kotoky, "India Joins China in Boycott of EU Carbon Scheme", *Reuters* (22 March 2012), online: [Reuters](http://www.reuters.com/) <<http://www.reuters.com/>>.

the EU ETS.²⁶ In November 2012, US President Obama signed into law a bill allowing the federal government to ban US airlines from participating in the EU ETS.²⁷

In response to the opposition from foreign governments, the European Commission proposed in November 2012 to exempt international flights for one year.²⁸ In April 2013, only days before the compliance deadline for surrendering emission allowances to cover emissions from flights in 2012, the European Parliament and the Council of the EU adopted a law to “stop the clock,” which temporarily suspended the inclusion of international flights for one year.²⁹ During this “stop the clock” period, the system covered flights within the EEA but made compliance optional for international flights.³⁰ Therefore, aircraft operators were no longer required to surrender emission allowances for international flights operated in 2012. The official rationale offered for this derogation from the Aviation Directive was “to facilitate an agreement at the 38th session of the ICAO Assembly on a realistic timetable for the development of a global [market-based measure].”³¹

At its 38th Assembly in October 2013, ICAO agreed to adopt in 2016 a mechanism to reduce emissions from aviation as of 2020.³² Less than two weeks later, the European Commission proposed to apply the EU ETS to all flights within the EEA’s regional airspace until 2020.³³ The proposed approach was to cover the portion of emissions from international

²⁶ Wael Mahdi, “Saudi Arabia Said to Order Airline to Reject EU Carbon Rules”, *Bloomberg* (2 October 2012), online: Bloomberg <<http://www.bloomberg.com/>>.

²⁷ US, *European Union Emissions Trading Scheme Prohibition Act of 2011*, Pub L No 112-200, 126 Stat 1477; see also “US Senate Committee Backs Draft Anti-ETS Law”, *ENDS Europe* (1 August 2012), online: ENDS Europe <<http://www.endseurope.com/>> [ENDS Europe, “US Senate Committee”].

²⁸ EU, *Proposal COM(2012)697 of the European Commission of 20 November 2012 for a Decision of the European Parliament and of the Council Derogating Temporarily from Directive 2003/87/EC of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community*.

²⁹ EU, *Decision 377/2013/EU of the European Parliament and of the Council of 24 April 2013 Derogating Temporarily from Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community*, [2013] OJ, L 113/1.

³⁰ Recital 6 of *ibid*. Note that during this “stop the clock” period the system also covered flights between the EEA and Switzerland, which is not part of the former.

³¹ Recital 10 of *ibid*.

³² ICAO, Res A38-18, ICAOOR, 38th Sess (2013).

³³ EU, *Proposal COM(2013)722 of the European Commission of 16 October 2013 for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in View of the Implementation by 2020 of*

flight activity that was performed within EEA airspace, which would have increased the coverage of emissions by more than half compared to the existing “stop the clock” scope.³⁴ The EU legislators, however, decided not to follow the European Commission’s proposed approach. In April 2014, two weeks prior to the compliance deadline for surrendering emission allowances, the European Parliament and the Council of the EU adopted a law to suspend international flights from the aviation inclusion until the end of 2016, essentially extending the existing “stop the clock” period until then.³⁵ During this “stop the clock” period the system only covered flights within the EEA. The stated rationale for this continued derogation from the Aviation Directive was “to sustain the momentum reached at the 38th Session of the ICAO Assembly in 2013 and facilitate progress at the upcoming 39th Session in 2016.”³⁶

At its 39th Assembly in October 2016, ICAO agreed to set up a global market-based measure based on offsets, dubbed “Carbon Offsetting and Reduction Scheme for International Aviation,” which is to apply on a voluntary basis from 2021 onwards, move to a second voluntary phase in 2024, and become mandatory in 2027.³⁷ In response to this development, the European Parliament and the Council of the EU agreed in December 2017 to extend the “stop the clock” period until the end of 2023.³⁸ Because allowances to cover

an International Agreement Applying a Single Global Market-Based Measure to International Aviation Emissions.

³⁴ See EU, *Impact Assessment SWD(2013)430 of the European Commission of 16 October 2013 Accompanying the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in View of the Implementation by 2020 of an International Agreement Applying a Single Global Market-Based Measure to International Aviation Emissions* at 23 [Impact Assessment of EEA Airspace Proposal].

³⁵ EU, *Regulation 421/2014 of the European Parliament and of the Council of 16 April 2014 Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in View of the Implementation by 2020 of an International Agreement Applying a Single Global Market-Based Measure to International Aviation Emissions*, [2014] OJ, L 129/1.

³⁶ Recital 2 of *ibid*.

³⁷ José Rojo, “Countries Agree on First Global Scheme for Aviation Emissions”, *ENDS Europe* (6 October 2016), online: ENDS Europe <<http://www.endseurope.com/>>.

³⁸ John McGarrity, “EP Rubber Stamps Aviation ETS Compromise”, *ENDS Europe* (12 December 2017), online: ENDS Europe <<http://www.endseurope.com/>>; EU, *Regulation 2017/2392 of the European Parliament and of the Council of 13 December 2017 Amending Directive 2003/87/EC to Continue Current Limitations of Scope for Aviation Activities and to Prepare to Implement a Global Market-Based Measure From 2021*, [2017] OJ, L 350/7.

emissions from international flights during 2017 were due to be surrendered in April 2018, this extension ensured that international flights continued to be exempted without interruption.³⁹

In terms of emissions covered, total verified emissions from the aviation sector in the EU ETS were 54 Mt CO₂-eq in 2013 and rose to 64 Mt CO₂-eq in 2017.⁴⁰ Under the original scope that included both flights within the EEA and international flights, however, the system was intended to cover 210 Mt CO₂-eq from 2013 onwards,⁴¹ which is almost four times more than verified emissions in 2013 under the “stop the clock” scope.⁴² As global commercial aviation emissions amounted to 709 Mt CO₂ in 2013,⁴³ the system would have covered almost 30% of global commercial aviation emissions under its original scope, whereas under “stop the clock” it actually covered only 7.5% of global commercial aviation emissions in that year. In terms of regulated entities, the EU ETS covered 851 aircraft operators in 2013.⁴⁴ According to the European Commission, some 300 aircraft operators are responsible for around 99% of aviation emissions covered under the system.⁴⁵

The total quantity of emission allowances for the aviation sector under the EU ETS is based on the average of the annual emissions between 2004 and 2006 from aviation activities covered by the system.⁴⁶ The aviation cap was set at 97% of these historical aviation emissions in 2012 and at 95% of these emissions for each subsequent year.⁴⁷ In 2012, 85% of emission allowances under the aviation cap were allocated to aircraft operators free of charge, while the remainder was auctioned. As of 2013, 82% of these allowances are

³⁹ See Zoran Radosavljevic, “MEPs Give International Flights Respite From EU Carbon Fees Until 2021”, *EurActiv* (13 September 2017), online: EurActiv <<https://www.euractiv.com/>>.

⁴⁰ EU, European Environment Agency, *Trends and Projections in the EU ETS in 2018: The EU Emissions Trading System in Numbers* (Copenhagen: EEA, 2018) at 35.

⁴¹ Article 1 of the *EEA Decision*, *supra* note 10.

⁴² See Impact Assessment of EEA Airspace Proposal, *supra* note 34 at 23.

⁴³ International Air Transport Association, *World Air Transport Statistics*, 60th ed (Montreal: IATA, 2016) at 46.

⁴⁴ EU, European Environment Agency, *EU Emissions Trading System (ETS) Data Viewer*, online: EEA <<http://www.eea.europa.eu/>> (retrieved 8 March 2019).

⁴⁵ Impact Assessment of EEA Airspace Proposal, *supra* note 34 at 15.

⁴⁶ Articles 3(s) and 3c of the *EU ETS Directive*, *supra* note 9.

⁴⁷ Article 3c of *ibid.*

allocated free of charge, 15% are auctioned, and the remaining 3% are set aside into a special reserve for new entrants and fast growing airlines.⁴⁸ The number of emission allowances allocated free of charge is based on an aircraft operator's aviation activity in 2010 and calculated in tonne-kilometres, which is the distance flown multiplied by the total mass of freight, mail, and passengers carried.⁴⁹ As a result, those aircraft operators that perform long-haul flights and maximize their aircraft's capacity utilization are allocated the highest share of free emissions allowances.

The aviation inclusion's economic impacts on consumers are modest, even though aircraft operators are likely to pass on, in large part or in full, the compliance costs to their customers.⁵⁰ At an allowance price of EUR 30 per tonne of CO₂-eq, the round trip ticket price for a long-haul flight from London Gatwick to Newark increases by EUR 40, whereas the same ticket increases by EUR 8 at an allowances price of EUR 6 per tonne of CO₂-eq.⁵¹ For a medium-haul flight from Munich to Palma de Mallorca, the ticket increase ranges between EUR 9 and EUR 2, depending on the allowances price.⁵² For a short-haul flight from Amsterdam to Paris, the figures are between EUR 5 and EUR 1.⁵³

With a view to enforcement, the EU ETS foresees a series of escalating measures.⁵⁴ This includes the publication of the names of non-compliant aircraft operators, and a penalty of EUR 100 for each tonne of CO₂-eq emitted for which an aircraft operator has not surrendered allowances.⁵⁵ Importantly, where these enforcement measures have failed to ensure compliance, the EU Member States may request the European Commission to impose an

⁴⁸ Articles 3d, 3e, and 3f of *ibid.*

⁴⁹ Annex IV of *ibid.*

⁵⁰ EU, *Impact Assessment SEC(2006)1684 of the European Commission of 20 December 2006 Accompanying the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emission Allowance Trading Within the Community* at 33-34 [Impact Assessment of Initial Inclusion].

⁵¹ *Ibid* at 34, 101.

⁵² *Ibid.*

⁵³ *Ibid.*

⁵⁴ Article 16 of the *EU ETS Directive*, *supra* note 9.

⁵⁵ It should be noted that this penalty does not release an aircraft operator from the surrendering obligation for those emissions.

operating ban on the aircraft operator concerned. Any such operating ban is to be enforced by the EU Member State administering the non-compliant aircraft operator.

Lastly, the aviation inclusion is designed to allow the exemption of international flights from third countries that adopt their own policies to reduce the climate change impact of aviation. Specifically, “[i]f a third country adopts measures, which have an environmental effect at least equivalent to that of [the EU’s aviation inclusion],”⁵⁶ the European Commission is to consider “options available [to] provide for optimal interaction between the [EU ETS] and that country’s measures,” which includes the exclusion of flights arriving from such a third country.⁵⁷

In summary, the EU passed a law in 2008 to include the aviation sector in the EU ETS from 2012 onwards, covering both flights within the EEA and international flights. However, in 2013, the EU temporarily suspended the inclusion of international flights for one year. Therefore, aircraft operators were not required to surrender emission allowances for international flights operated in 2012. In 2014, the EU essentially extended this derogation for international flights until the end of 2016. In 2017, the EU extended this derogation further until the end of 2023. These policy changes under the “stop the clock” periods that followed the “initial inclusion” of the sector into the EU ETS effectively exempted aircraft operators from surrendering emission allowances for their international flights dating back to the launch of the system. Therefore, unlike originally intended, the system never effectively covered international flights in addition to flights within the EEA. The following parts examine the reasons behind these policy outcomes, specifically the initial inclusion and subsequent exemption of international flights.

3.3 Concerns about WTO Law

This part examines whether there were any concerns among policy-makers about WTO law that had to be overcome for the initial inclusion of international flights or whether such

⁵⁶ Recital 17 of the *Aviation Directive*, *supra* note 8.

⁵⁷ Article 25a of the *EU ETS Directive*, *supra* note 9.

concerns led to their subsequent exemption from the EU ETS. As will be seen, WTO law cannot explain these policy outcomes.

Because the inclusion of international flights is a measure that is comparable to a BCA,⁵⁸ a WTO panel may not necessarily assess it in line with BCAs as commonly envisioned. While a substantial body of literature exists that addresses the compliance of BCAs with the rules of the WTO,⁵⁹ the literature is relatively sparse on the WTO legality of the aviation inclusion in the EU ETS in specific. The few publications that do address this particular case, however, arrive at conclusions that essentially are in line with the body of literature on the WTO compliance of BCAs in general, namely that the aviation inclusion is likely to be compliant with WTO law.

Ibitz, Bartels, and Melzer identify potential conflicts with the GATT and the General Agreement on Trade in Services (GATS), but they consider any violations very likely to be justified under the exceptions of Article XX GATT and Article XIV GATS, respectively.⁶⁰ Holzer, who excludes the GATS from her analysis, also identifies potential violations of the basic GATT rules, although she is less certain about the ability of justifying these under Article XX GATT.⁶¹ Howse agrees with Bartels that the aviation inclusion in the EU ETS is compatible with WTO law as long as it is applied in an even-handed and non-protectionist manner.⁶²

Only few publicly available documents of the EU institutions address WTO law in the context of the aviation inclusion. In fact, the issue is mentioned only briefly in two European Commission documents. In the impact assessment accompanying its 2006 proposal to include the sector in the EU ETS, the European Commission itself did not address WTO law,

⁵⁸ See part 3.1, above.

⁵⁹ See section 2.3.1, above.

⁶⁰ See Armin Ibitz, "Towards a Global Scheme for Carbon Emissions Reduction in Aviation: China's Role in Blocking the Extension of the European Union's Emissions Trading Scheme" (2015) 13:2 Asia Europe Journal 113 at 119; Lorand Bartels, "The WTO Legality of the Application of the EU's Emission Trading System to Aviation" (2012) 23:2 European Journal of International Law 429 at 437; Meltzer, *supra* note 3 at 154-155.

⁶¹ See Holzer, *supra* note 3 at 181-184.

⁶² Robert Howse, "Commentary: The Political and Legal Underpinnings of Including Aviation in the EU ETS" in Lorand Bartels, "The Inclusion of Aviation in the EU ETS: WTO Law Considerations" (2012) International Centre for Trade and Sustainable Development, Issue Paper 6 28 at 29.

although it annexed a resolution of the European Parliament in which that institution “[a]cknowledges that the [European] Commission, after careful assessment, is of the opinion that [the proposed inclusion of international flights] is compatible with international agreements, e.g. WTO rules.”⁶³ Apart from that, a few remarks on WTO law were included in an annex to the European Commission’s impact assessment that accompanied its 2013 proposal to apply the EU ETS to all flights within the EEA’s regional airspace.⁶⁴ In contrast to the findings in the above-mentioned literature, the European Commission did not identify any grounds for a violation of the GATT or the GATS, although it highlighted the possibility of justifying any violations if necessary.⁶⁵

European Commission officials confirmed that the EU executive considered the WTO compliance of the aviation inclusion when proposing the initial inclusion and the proposals for the “stop the clock” periods and that it concluded WTO law did not present an obstacle.⁶⁶ Indeed, European Commission officials considered the aviation inclusion to be compliant with WTO law, noting that “this system is robust in WTO terms.”⁶⁷ A European Commission official elaborated on the WTO compliance of the aviation inclusion:

We considered that when we made the proposal. And we considered it again when we considering the possibility of the derogation [of international flights]. And every time I was told an opinion by the [European Commission’s] Legal Service, they said to me we could defend this in the WTO. They could not tell me we would succeed with 100% certainty – law is not a black and white issue – but they thought we could defend it. (...) It was a question of judgement and we felt the balance was on our side.⁶⁸

The official added: “We are not afraid of WTO scrutiny. It was a threat. But we can face that threat. The Commission is not a novice when it comes to trade (...). Our lawyers are

⁶³ Impact Assessment of Initial Inclusion, *supra* note 50 at 78.

⁶⁴ See Impact Assessment of EEA Airspace Proposal, *supra* note 34 at 84-85.

⁶⁵ *Ibid.*

⁶⁶ Interviews of European Commission official E (26 October 2015), European Commission official D (29 October 2015), European Commission official A (27 October 2015), and European Commission official F (3 November 2015).

⁶⁷ Interview of European Commission official A (27 October 2015).

⁶⁸ Interview of European Commission official E (26 October 2015).

pretty, pretty good.”⁶⁹ Another European Commission official shared this confidence in the institutions’ expertise on WTO law, indicating that “the Commission has more WTO knowledge than most [other] organizations that propose laws.”⁷⁰

Several European Commission officials emphasized that it was important to the EU executive to propose and implement a WTO compliant system. Speaking to the importance of compliance with WTO law, European Commission officials stated that “nothing comes out of the Commission unless it is WTO compliant”⁷¹ and that “if [the aviation inclusion] had not been [compatible with WTO law], it would have been unthinkable that the Commission proposed it.”⁷² When asked about the hypothetical situation that a WTO panel were to find the aviation inclusion to be in violation of WTO law, European Commission officials acknowledged that the EU executive would consider that a problem.⁷³ A European Commission official explained: “It would be an issue. Because we play by the rules, and we believe what we are doing is within the rules. If we were judged to be contravening the rules, we would want to comply with the rules of trade. That is our premise – rule-based governance of world issues by global trade [regulation].”⁷⁴

To date, no case has been brought to challenge the aviation inclusion at the WTO. When asked about the reasons, European Commission officials opined that those opposing the aviation inclusion may have recognized that a challenge would fail.⁷⁵ Another European Commission official suggested the following: “I think people are scared of losing. Because if they lose, there is nothing holding us back.”⁷⁶ These views are congruent with those offered by Howse, who points out that the aviation inclusion in general, as opposed to particular

⁶⁹ *Ibid.*

⁷⁰ Interview of European Commission official A (27 October 2015).

⁷¹ *Ibid.*

⁷² Interview of European Commission official D (29 October 2015).

⁷³ Interviews of European Commission official E (26 October 2015) and European Commission official A (27 October 2015).

⁷⁴ Interview of European Commission official E (26 October 2015).

⁷⁵ Interviews of European Commission official A (27 October 2015), European Commission official D (29 October 2015), and European Commission official F (3 November 2015).

⁷⁶ Interview of European Commission official E (26 October 2015).

applications of it, could only be challenged if it violated WTO rules “on its face.”⁷⁷ Since such a challenge would very likely fail, “[t]his would be a big loss because the WTO would have explicitly rejected the line in the sand that [the opponents of the aviation inclusion] are trying to preserve concerning [unilateral climate policy].”⁷⁸ This may explain why third countries resorted to political opposition instead.⁷⁹

To summarize, European Commission officials considered the WTO legality of the aviation inclusion, and they were convinced that the system was in compliance with WTO law and could be defended at the WTO, if necessary. This likely explains why the WTO legality of the aviation inclusion did not feature prominently in publicly available policy documents. Similarly, the subsequent exemption of international flights was not motivated by considerations with regards to WTO law. Therefore, concerns about WTO law did not determine these policy outcomes.

3.4 Practical Concerns

This part examines whether any practical difficulties had to be overcome for the initial inclusion of international flights or whether any such concerns led to their subsequent exemption from the EU ETS. The discussion first addresses potential concerns about the administrative complexity of implementing and administering the aviation inclusion (section 3.4.1) before turning to potential concerns about the policy’s effectiveness in reducing emissions (section 3.4.2). This part concludes that there were no such considerations that could explain any of the policy outcomes.

3.4.1 Administrative Complexity

Although the process of monitoring, reporting, and verification (MRV) of aviation emissions is no different for international flights than for flights within the EEA, this section

⁷⁷ Howse, *supra* note 62 at 29-30.

⁷⁸ *Ibid* at 31.

⁷⁹ *Ibid*. For a detailed account of the international opposition to the inclusion of international flights in the EU ETS, see section 3.6.1, below.

discusses the MRV of aviation emissions to determine the administrative complexity of implementing and administering the inclusion of international flights.

While an industry representative claimed that the MRV of aviation emissions is difficult in practice due to the need for tracking data on a flight-by-flight basis,⁸⁰ European Commission officials and an NGO representative were convinced that the MRV process is simple and straightforward.⁸¹ Claims of administrative difficulty appear unconvincing because the monitoring of aviation emissions is based on the fuel consumed during a flight,⁸² and a direct relationship exists between the emissions released and the carbon content of the fuel consumed.⁸³ Furthermore, existing international regulations already had obliged airlines to register the amounts of fuel consumed on each flight.⁸⁴ In fact, the Association of European Airlines (AEA), which represents European flag carriers, had expressed a preference for basing the MRV system on actual trip fuel, regarding the method as “feasible and fairly straightforward to implement.”⁸⁵ In addition, air traffic management records offer further information that enable the MRV of aviation emissions to achieve a high degree of accuracy.⁸⁶

Furthermore, the MRV system was designed to fit well with aircraft operators’ existing management practices,⁸⁷ and appropriate internal accounting structures had been in place already for most aircraft operators.⁸⁸ Therefore, the MRV requirements do not appear to create significant additional burdens for aircraft operators. In fact, given that fuel accounts

⁸⁰ Interview of an industry representative (6 November 2015).

⁸¹ Interviews of European Commission official A (27 October 2015), European Commission official G (5 November 2015), European Commission official E (26 October 2015), and Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

⁸² Interview of European Commission official G (5 November 2015)

⁸³ Interview of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

⁸⁴ Ron CN Wit et al, “Giving Wings to Emission Trading: Inclusion of Aviation under the European Emission Trading System (ETS): Design and Impacts” (2005) CE Delft at 10.

⁸⁵ *Ibid* at 108.

⁸⁶ Interview of European Commission official E (26 October 2015).

⁸⁷ Interview of European Commission official G (5 November 2015); Impact Assessment of Initial Inclusion, *supra* note 50 at 48-49.

⁸⁸ *Ibid* at 22; interview of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

for a large proportion of operating costs, those aircraft operators who previously had not tracked their fuel consumption to a high degree of accuracy arguably were able to use this data to improve their flight operations.⁸⁹ For instance, the data could be used to identify aircraft that need servicing, such as engine washing, because their fuel burn will be higher, or to track pilot behaviour because the way an aircraft is piloted influences the fuel burn.⁹⁰ Therefore, the MRV requirements may offer powerful information that could improve the efficiency of an airline's flight operations.⁹¹

In summary, the MRV of aviation emissions is a simple and straightforward process that did not create significant additional burdens for aircraft operators. Given the relative ease of implementing and administering the inclusion of international flights in the EU ETS, there is no evidence to support the conclusion that administrative complexity concerns explain any of the policy outcomes.

3.4.2 Effectiveness in Reducing Emissions

This section examines whether concerns about the aviation inclusion's effectiveness in reducing emissions had to be overcome for the initial inclusion of international flights or whether any such concerns led to their subsequent exemption from the EU ETS.

Circumvention of the compliance obligation under the EU ETS could give rise to concerns about the aviation inclusion's effectiveness in reducing emissions. In theory, because the compliance obligation for aircraft operators is based on the fuel consumed during flights arriving at and departing from airports in the EEA, aircraft operators could reduce their compliance obligation for international flights by inserting stopovers just outside the EEA but in close proximity to the final destination in the EEA.⁹²

⁸⁹ Interviews of European Commission official G (5 November 2015) and an industry representative (6 November 2015).

⁹⁰ Interview of European Commission official G (5 November 2015).

⁹¹ *Ibid.*

⁹² In this case, the compliance obligation would be based on the fuel consumed during the flight between the additional stopover and the airport in the EEA. This is because the EU ETS covers flights that "depart from or arrive in an aerodrome situated in the [EEA]"; see Annex I of the *EU ETS Directive*, *supra* note 9.

In practice, however, there is no evidence that airlines altered their flights to avoid the compliance obligation in this way. There is also no evidence that policy-makers were worried about such circumvention. Indeed, none of the interviewees in this case study indicated such concerns, and no relevant documentary evidence on this issue was found. This may be due to consumer demand for direct flights. Given the modest economic impacts of the aviation inclusion on ticket prices,⁹³ the inconvenience of an additional stopover is likely to outweigh any minor cost savings from a reduced compliance obligation under the EU ETS.

In conclusion, there is no evidence that policy-makers had any concerns about the aviation inclusion's effectiveness in reducing emissions. As a result, no such concerns could explain the initial inclusion or subsequent exemption of international flights.

3.5 Alternative Measures

This part examines whether policy-makers or stakeholders preferred any alternative measures to pursue the benefits of the aviation inclusion. The following remarks consider whether any such preference had to be overcome for the initial inclusion of international flights or led to the subsequent exemption of these flights from the EU ETS. As will be seen, there was no preference for alternative measures.

Policy-makers' motivation to include the aviation sector in the EU ETS was based on a desire to address the climate impact of the aviation sector,⁹⁴ with the inclusion of international flights offering particularly strong environmental benefits due to its extensive coverage of emissions.⁹⁵ Consequently, the question arises whether any alternative measures to reduce emissions from international flights explained any of the policy outcomes. There is no evidence, however, that policy-makers or stakeholders preferred any alternative measures to reduce aviation emissions. Similarly, when exempting international flights from the EU

⁹³ See part 3.2, above.

⁹⁴ Recital 14 of the *Aviation Directive*, *supra* note 8; interviews of European Commission official E (26 October 2015), European Commission official D (29 October 2015), and European Commission official A (27 October 2015).

⁹⁵ See part 3.2, above.

ETS, the EU legislators did not adopt any alternative measures to reduce emissions from these flights. In particular, because policy-makers sought to reduce the emissions from international flights by extending the coverage of the EU ETS to these flights, free allocation was not available as an alternative measure as it is unable to achieve this goal.⁹⁶

In sum, there is no evidence that policy-makers or stakeholders preferred any alternative measures to reduce emissions from international flights. As a result, alternative measures cannot explain the policy outcomes in this case.

3.6 Concerns about Repercussions for International Relations

This part examines whether concerns about repercussions for international relations had to be overcome for the initial inclusion of international flights or whether such concerns led to their subsequent exemption from the EU ETS. The discussion concentrates on fears of trade war and retaliation (section 3.6.1) and of hampering international climate efforts (section 3.6.2). The evidence shows that strong international opposition during the implementation of the aviation inclusion sparked fears of trade war and retaliation that led to the exemption of international flights from the EU ETS, while a fear of hampering international climate efforts is unlikely to have been more than a minor concern, if any, for EU policy-makers.

3.6.1 Fear of Trade War and Retaliation

This section contains a detailed account of the reaction from third countries to the inclusion of international flights in the EU ETS, which consisted of a wide range of threats and retaliatory measures (section 3.6.1.1), before addressing the impact of this international opposition on the inclusion of international flights (section 3.6.1.2).

⁹⁶ This is in contrast to the case of stationary installations in the EU ETS, where the political discourse of BCAs focused on competitiveness issues; see chapter 4.

3.6.1.1 Threats and Retaliatory Measures by Third Countries

In opposition to the inclusion of international flights in the EU ETS, third countries uttered a series of increasingly hostile threats against the EU, organized several international meetings to demonstrate their opposition, and enacted a number of retaliatory measures. The group of third countries that opposed the inclusion of international flights became known as the “coalition of the unwilling”⁹⁷ and included “big players,”⁹⁸ such as the US, China, India, and “scary countries like Russia.”⁹⁹

In the context of an October 2010 ICAO resolution, Russia indicated in a reservation that it “does not rule out the introduction of adequate retaliatory measures (...) in respect of the [airline] operators of [states] which introduce market-based measures unilaterally.”¹⁰⁰ Rhetoric about a potential trade war over the EU ETS aviation dispute first surfaced in 2011. In June of that year, EU airlines warned of “a damaging trade war with the US, Russia, and China” because of the inclusion of international flights.¹⁰¹ Later that month, China was reported to have threatened Germany with retaliatory measures on EU airlines, including banning them from flying to China, should the EU proceed with the inclusion of international flights.¹⁰² In September of that year, China, India, Russia, the US, and 17 other states voiced their opposition to the EU’s inclusion of international flights in the New Delhi declaration,¹⁰³ the essence of which the vast majority of ICAO Council members adopted as a non-binding declaration two months later.¹⁰⁴ In November, the BASIC countries expressed their

⁹⁷ See e.g. “Coalition of States Comes Up With Basket of Countermeasures Over EU ETS but Falls Short of a Coordinated Attack”, *GreenAir Online* (23 February 2012), online: GreenAir Online <<http://www.greenaironline.com/>>.

⁹⁸ Interview of a government official (16 June 2016).

⁹⁹ Interview of European Commission official A (27 October 2015).

¹⁰⁰ Russia, Reservation to ICAO, Res A37-19, ICAOOR, 37th Sess (2010).

¹⁰¹ Dan Milmo, “European Airlines Fear Trade War Over Carbon Emissions Trading”, *The Guardian* (5 June 2011), online: The Guardian <<http://www.theguardian.com/>>.

¹⁰² Jens Flottau, Adrian Schofield & Leithen Francis, “China Threatens Retaliation On Emissions Trading”, *Aviation Week* (13 June 2011), online: Aviation Week <<http://aviationweek.com/>>.

¹⁰³ New Delhi Declaration, *supra* note 15.

¹⁰⁴ ENDS Europe, “ICAO Council”, *supra* note 17.

opposition to “unilateral measures on climate change, such as the inclusion of emissions from international aviation in the [EU ETS].”¹⁰⁵

In December 2011, the International Air Transport Association warned that the dispute “could result in a trade war.”¹⁰⁶ Shortly after that, the US threatened to “take appropriate action” should the EU proceed to include international flights.¹⁰⁷ On the same day, in what could be seen as “a first step towards retaliatory measures,”¹⁰⁸ the US government ordered nine major EU airlines to report information related to their inclusion under the EU ETS.¹⁰⁹ In the Moscow declaration of February 2012, China, India, Russia, the US, and 28 other states urged the EU to cease application of the Aviation Directive to third country airlines and put forward a list of possible countermeasures to be taken.¹¹⁰ This basket of possible measures included legislation to prohibit airlines from participating in the EU ETS, “reciprocal measures [that] may adversely affect [EU airlines or aviation-related enterprises],” the review and reconsideration of bilateral air service agreements with EU Member States, the suspension of discussions or negotiations on enhancing operating rights for EU airlines, and the imposition of levies or charges on EU airlines.¹¹¹ In the context of these possible measures, Russia specifically threatened to limit EU carriers’ use of routes over Siberia and instead give preference to airlines from other countries.¹¹² A Russian government official called on the EU “to do whatever it takes to prevent a trade war” and indicated the country’s aim to get the EU’s policy “either cancelled or postponed.”¹¹³ In May

¹⁰⁵ BASIC Statement, *supra* note 16 at point 15.

¹⁰⁶ Cathy Buyck, “IATA Warns EU ETS Could Trigger Trade War”, *Air Transport World* (8 December 2011), online: Air Transport World <<http://atwonline.com/>>.

¹⁰⁷ US, Letter from Secretary of State Hillary Clinton & Secretary of Transportation Raymond LaHood to Ministers of EU Member States & European Commission (16 December 2011).

¹⁰⁸ “US Government Requests Airlines’ ETS Data”, *ENDS Europe* (19 December 2011), online: ENDS Europe <<http://www.endseurope.com/>>.

¹⁰⁹ US, Department of Transportation, “Order 2011-12-10” (16 December 2011), online: US Government <<http://www.regulations.gov/>>.

¹¹⁰ Moscow Declaration, *supra* note 18.

¹¹¹ *Ibid.*

¹¹² Pilita Clark & Catherine Belton, “Russia Threatens to Cap EU Flights”, *Financial Times* (22 February 2012), online: Financial Times <<http://www.ft.com/>>.

¹¹³ *Ibid.*

2012, India threatened to ban EU airlines from its airspace should the EU impose sanctions on Indian aircraft operators for their non-compliance with the EU ETS.¹¹⁴

Indeed, a number of third countries put in place legislation to prevent their airlines from participating in the EU ETS. During 2012, China, India, and Saudi Arabia instructed their airlines not to comply with the EU ETS, and the US passed legislation allowing the government to ban the country's airlines' compliance with the EU ETS.¹¹⁵

Furthermore, European aircraft manufacturer Airbus, which has manufacturing facilities in France, Germany, Spain, and the United Kingdom, was concerned about aircraft orders placed by state-owned Chinese airlines. In a joint letter sent to the European Commission in May 2011, Airbus CEO Tom Enders and AEA chairman Steve Ridgway warned of possible retaliatory measures by China and "other powerful countries" taken against European airlines and Airbus in response to the inclusion of international flights in the EU ETS.¹¹⁶ In June of that year, reports surfaced that "the Chinese government (...) blocked an order from Hainan Airlines' subsidiary Hong Kong Airlines for 10 Airbus A380 aircraft" because of China's opposition to the inclusion of international flights.¹¹⁷

In March 2012, Airbus CEO Tom Enders was reported to have orchestrated a campaign that was backed by six large European airlines and two big manufacturers of aerospace engines.¹¹⁸ In joint letters to the heads of state of France, Germany, Spain, and the UK, these European aviation industry representatives warned of trade conflict with China, the US, and Russia and urged EU political leaders to put on hold the inclusion of international flights. The signatories warned that the EU's policy jeopardised "2,000 jobs and billions of dollars of

¹¹⁴ James Fontanella-Khan, Andrew Parker & Joshua Chaffin, "India Warns EU on Airline Carbon Tax", *Financial Times* (25 May 2012), online: *Financial Times* <<http://www.ft.com/>>.

¹¹⁵ See ENDS Europe, "China Tells Airlines", *supra* note 24; Kotoky, *supra* note 25; Mahdi, *supra* note 26; US, *European Union Emissions Trading Scheme Prohibition Act of 2011*, *supra* note 27; see also ENDS Europe, "US Senate Committee", *supra* note 27.

¹¹⁶ Pilita Clark, "Airbus Chief Warns on EU Emissions Policy", *Financial Times* (5 June 2011), online: *Financial Times* <<http://www.ft.com/>>.

¹¹⁷ Robert Wall, "Objection to EU Emissions Trading Hits A380 Order", *Aviation Week* (28 June 2011), online: *Aviation Week* <<http://aviationweek.com/>>.

¹¹⁸ Peter Marsh, Joshua Chaffin & Simon Rabinovitch, "Delay EU Carbon Levy, Says Air Industry", *Financial Times* (11 March 2012), online: *Financial Times* <<http://www.ft.com/>>.

[aircraft] orders from China,” with “three state-owned Chinese airlines (...) refusing to finalise orders for 45 Airbus A330 [aircraft] worth up to \$12bn.”¹¹⁹ One month later, China Eastern Airlines ordered up to 20 Boeing 777 aircraft worth \$6bn and “[stalled] on the completion of a \$3bn order for 15 Airbus A330 aircraft” that had been announced in October of the previous year.¹²⁰

At an industry conference in June of that year, an Airbus executive publicly supported China’s opposition to the inclusion of international flights, and the CEO and Director-General of the International Air Transport Association warned that the EU policy “could trigger disputes or even a trade war in the industry.”¹²¹ Only four days after the European Commission first proposed to exempt international flights under “stop the clock,” Airbus Passenger Aircraft Division CEO Fabrice Brégier sent a letter to the Chinese government, in which he praised the company’s and China’s joint efforts in “[ensuring] that Chinese airlines are not unfairly impacted by the [aviation inclusion] as previously planned” and asked the Chinese government to lift its suspension of orders for 45 Airbus A330 aircraft.¹²² When the European Parliament and the Council of the EU adopted the first “stop the clock” law in April 2013, China partly lifted its blockade on these aircraft orders,¹²³ and it finalized the order in June 2015.¹²⁴

Moreover, European Commission officials described other actual or potential retaliatory measures that EU airlines were concerned about. A European Commission official referred to reports from EU Member States that described incidents of annoyances related to air traffic management that EU airlines were subjected to in third countries, such as not being granted requests for take-off with the result of aircraft having to return to the gates to

¹¹⁹ *Ibid.*

¹²⁰ Tim Hether, Kyle Peterson & Fang Yan, “China Buys Boeing 777s, Delays Airbus Deal: Sources”, *Reuters* (26 April 2012), online: Reuters <<http://www.reuters.com/>>.

¹²¹ “Airbus Supports China’s Opposition to EU Emissions Tax”, *China Daily* (13 June 2012), online: China Daily <<http://www.chinadaily.com.cn/>>.

¹²² European Aeronautic Defence and Space Company, Letter from Airbus Passenger Aircraft Division CEO Fabrice Brégier to Chinese Minister Li Jiexiang (16 November 2012).

¹²³ Barbara Lewis, “Airbus to China: We Support You, Please Buy Our Jets”, *Reuters* (12 May 2013), online: Reuters <<http://www.reuters.com/>>.

¹²⁴ “China Inks Deal for up to 75 Airbus A330 Jets”, *Financial Times* (30 June 2015), online: Financial Times <<http://www.ft.com/>>.

disembark passengers.¹²⁵ Although the official considered these incidents to be “scaremongering,” the interviewee acknowledged that they incurred costs for airlines and affected their levels of service.¹²⁶

Another European Commission official mentioned more far-reaching potential retaliatory measures that EU airlines were concerned about, such as difficulties in getting flight plans approved or in obtaining slots to enter airspace sectors, which, in practice, are tantamount to refusing airlines to operate.¹²⁷ An industry representative confirmed that European flag carriers were concerned about retaliation from third countries given that a significant share of their flights is operated to non-EEA countries.¹²⁸ Similarly, a government official recalled “a lot of menacing from other countries that would be perfectly willing to take retaliatory action towards EU carriers.”¹²⁹ A European Commission official conceded that “symbolic or real retaliatory measures” against EU airlines were “not beyond belief” if an EU Member State were to be “forced to seize [aircraft] assets from an airline” to enforce an operating ban.¹³⁰ Another European Commission official emphasized the practical and economic implications for EU airlines of any limitation of flight routes over Siberia as threatened by Russia.¹³¹

Finally, although the vast majority of aircraft operators complied with the aviation inclusion,¹³² some international aircraft operators did not comply with the system even under the “stop the clock” periods when the geographical scope was limited to flights within the EEA. According to the European Commission, most Chinese and Indian aircraft operators refused to comply with the EU ETS from 2011,¹³³ adding that “China and India were the

¹²⁵ Interview of European Commission official D (29 October 2015).

¹²⁶ *Ibid.*

¹²⁷ Interview of European Commission official E (26 October 2015).

¹²⁸ Interview of an industry representative (6 November 2015).

¹²⁹ Interview of a government official (22 November 2017).

¹³⁰ Interview of European Commission official F (3 November 2015).

¹³¹ Interview of European Commission official E (26 October 2015).

¹³² Impact Assessment of EEA Airspace Proposal, *supra* note 34 at 13.

¹³³ *Ibid* at 12. It should be noted that, although the surrendering obligation came into effect only in 2012, the obligation to report emissions was in effect since 2010.

only two [s]tates from where no airline complied in 2012.”¹³⁴ A European Commission official viewed these “defiant actions of [non-compliance as] part of a provocation to test the EU and see how far we would go [with enforcement].”¹³⁵

The international opposition appears to have been organized and led by the US,¹³⁶ with two European Commission officials and an NGO representative pointing out that the New Delhi declaration’s electronic document properties attribute authorship to the “FAA,” which was understood to denote the US Federal Aviation Administration.¹³⁷ The driving force leading the US government to oppose the inclusion of international flights was widely seen to be the US aviation industry.¹³⁸ A European Commission official pointed out that the industry framed the inclusion of international flights in terms of four characteristics that fell on sympathetic ears in Washington, DC.¹³⁹ First, the policy addressed climate change, which is a partisan, polarized issue among US policy-makers. Second, the aviation inclusion was portrayed as a tax. Third, the industry highlighted the policy as taxation of US sovereign entities by third countries. Fourth, the policy was emphasized as being foreign because it was a new approach for the aviation sector that had not been developed and piloted in the US. The European Commission official concluded: “When you go to Washington, DC and start talking about foreign climate taxes on American corporations, you get a receptive audience.”¹⁴⁰

¹³⁴ *Ibid* at 13.

¹³⁵ Interview of European Commission official F (3 November 2015).

¹³⁶ Interviews of European Commission official B (27 October 2015), European Commission official A (27 October 2015), European Commission official D (29 October 2015), and European Commission official F (3 November 2015).

¹³⁷ Interviews of European Commission official G (5 November 2015), European Commission official D (29 October 2015), and Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015).

¹³⁸ Interviews of European Commission official A (27 October 2015), European Commission official F (3 November 2015), European Commission official D (29 October 2015), European Commission official G (5 November 2015), and a government official (22 November 2017).

¹³⁹ Interview of European Commission official G (5 November 2015). A government official confirmed this perception in another interview; see interview of a government official (22 November 2017).

¹⁴⁰ Interview of European Commission official G (5 November 2015).

3.6.1.2 Impact of Third Country Opposition

All interviewees in this case study cited the strong opposition from third countries and the resulting fear of trade war and retaliation among EU policy-makers as leading to the exemption of international flights. Notably, the international opposition only emerged during the implementation of the aviation inclusion following its adoption two years earlier. Therefore, no such opposition had to be overcome leading up to the adoption of the aviation inclusion. The US aviation industry was reported to have “spent more than two years convincing the Obama administration and Congress to oppose the [inclusion of international flights in the EU ETS],”¹⁴¹ which may explain the timing of the international opposition.

When the international opposition emerged, the European Commission and the EU Member States were initially able to show a united front.¹⁴² However, as the international opposition grew, the unity began to disintegrate. At some point during 2012, the European Commission realized that proceeding with the implementation of the Aviation Directive as foreseen was no longer politically feasible.¹⁴³ At the time, the Transatlantic Trade and Investment Partnership, a trade agreement between the US and the EU, was under negotiation and the EU ambassador to the US called the aviation inclusion “a major irritant between the EU and the US.”¹⁴⁴ A European Commission official explained that the EU executive felt it was “heading straight towards a trade war with the US, just at the time when [the Transatlantic Trade and Investment Partnership] became a priority.”¹⁴⁵ EU policy-makers saw the trade agreement as “the major priority,” which “nothing was allowed to contaminate.”¹⁴⁶ Although European Commission officials had doubts whether a trade war would indeed ensue, that rhetoric caused nervousness in diplomatic circles and shifted EU policy-makers’ focus towards avoiding that it would become a reality.¹⁴⁷ Also independent

¹⁴¹ Barbara Lewis & Valerie Volcovici, “Insight: U.S., China Turned EU Powers Against Airline Pollution Law”, *Reuters* (10 December 2012), online: Reuters <<https://www.reuters.com/>>.

¹⁴² Interview of European Commission official F (3 November 2015).

¹⁴³ *Ibid.*

¹⁴⁴ *Ibid.*

¹⁴⁵ *Ibid.*

¹⁴⁶ *Ibid.*; also interview of European Commission official E (26 October 2015).

¹⁴⁷ Interview of European Commission official F (3 November 2015).

analysts considered “the threat of a trade war [to be] real, if not imminent.”¹⁴⁸ A European Commission official elaborated on the risk of serious political friction between the US and the EU:

Had the [US bill to ban US airlines from participating in the EU ETS] entered into force as planned in its earlier version, which was even more brutal and which would have meant instant conflict, then the EU Member States would immediately have been put into a situation where they would have had to enforce the ETS against airlines that were held by the US government not to comply. So [EU Member State officials] started looking a bit more closely into the ETS Directive to see what it would mean in case of non-compliance. And, of course, the EU Member States are responsible to introduce measures to enforce, and that would go all the way to seize assets, to freeze planes on airports and so on. That sounded very, very tough. Imagine you are the Netherlands with Schiphol airport and you are supposed to keep a US plane [on the ground] because that airline has not paid its dues under the ETS. That would be a very interesting political situation.¹⁴⁹

By advancing domestic legislation to prevent their airlines from participating in the EU ETS, third countries – namely China, India, Saudi Arabia, and the US – limited the EU Member States’ enforcement options. Because airlines that were instructed not to comply with the EU ETS were unlikely to pay fines for their non-compliance, these prohibitions removed the easiest enforcement option for EU Member States. The EU Member States were left with the most drastic measure of last resort of seizing aircraft to enforce operating bans, which likely would have led the dispute to escalate even further. Therefore, third countries’ prohibition laws raised the stakes in the dispute and significantly increased the difficulty in implementing the inclusion of international flights in the EU ETS.

The severity of the international opposition caught EU policy-makers by surprise. Wondering whether it was a sign of “maybe naiveté,” a government official admitted that they did not expect such strong resistance from third countries.¹⁵⁰ Likewise, an industry representative said that the EU underestimated how third countries would react.¹⁵¹ The European Commission was equally unsuspecting of how difficult the implementation of the

¹⁴⁸ See James Kanter & Nicola Clark, “Countries Seek Retaliation to Europe’s Carbon Tax on Airlines”, *The New York Times* (17 February 2012), online: The New York Times <<https://www.nytimes.com/>>.

¹⁴⁹ Interview of European Commission official F (3 November 2015).

¹⁵⁰ Interview of a government official (16 June 2016).

¹⁵¹ Interview of an industry representative (6 November 2015).

aviation inclusion would be, with a European Commission official conceding that the institution, understaffed at the time the international opposition emerged, “ran into” the dispute somewhat unprepared.¹⁵² Another government official called the inclusion of international flights in the EU ETS “a tremendous miscalculation by the European Commission.”¹⁵³ What is more, there was an internal divide within the European Commission between the Directorate-General for Climate Action and the Directorate-General for Mobility and Transport, the latter of which was nominally responsible for implementing the aviation inclusion but known to have little interest in doing so in the face of adversity.¹⁵⁴ This internal split was apparent to outsiders and weakened the European Commission’s negotiating power.

According to a government official, the international opposition put the EU Member States under tremendous political pressure, with third country governments delivering high-level diplomatic *démarches* to EU Member States through their embassies.¹⁵⁵ The official described the international opposition as being “in charge,” leading the direction of the dispute, and, ultimately, shaping the EU’s aviation inclusion policy.¹⁵⁶ Another government official confirmed that “international pressure” and “facing retaliation from foreign governments” led to the exemption of international flights.¹⁵⁷ The official highlighted that “not a single country outside of the EU supported [the inclusion of international flights in the EU ETS]” and that the EU “faced tremendous pressure from all over the world.”¹⁵⁸

Particularly retaliatory measures and threats related to Airbus appear to have played a key role in leading to the exemption of international flights. An NGO representative emphasized the regional, national, and Europe-wide industrial importance of Airbus.¹⁵⁹

¹⁵² Interview of European Commission official F (3 November 2015).

¹⁵³ Interview of a government official (22 November 2017).

¹⁵⁴ Interview of an industry representative (6 November 2015).

¹⁵⁵ Interview of a government official (16 June 2016).

¹⁵⁶ *Ibid.*

¹⁵⁷ Interview of a government official (22 November 2017).

¹⁵⁸ *Ibid.*

¹⁵⁹ Interview of Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015).

Although expressing doubts whether any Airbus orders would have in fact been cancelled, a European Commission official acknowledged that the suspensions and threats of cancellations seemed credible enough for EU policy-makers to worry,¹⁶⁰ especially at a time when the EU economy was still recovering from the financial crisis of 2007-2008.¹⁶¹ The official added that "the ministries [in the Airbus countries] were frightened by what they were told would happen to the aviation industry that they were managing, and they believed the scare stories they were told."¹⁶² Anecdotal evidence shared by two interviewees indicates that the heads of states of France, Germany, and the UK called the president of the European Commission in November 2012 to urge the EU institution to propose the exemption of international flights under the first "stop the clock" period.¹⁶³

In addition to retaliatory measures and threats related to Airbus, a European Commission official considered fears over Russia's threats to limit EU carriers' use of routes over Siberia instrumental in leading to the exemption of international flights.¹⁶⁴ While concerns about air traffic over Siberia predated the EU's inclusion of international flights, the EU policy worsened the issue by adding to existing complexities, and Russia saw an opportunity to use air traffic over Siberia as leverage in the aviation dispute.¹⁶⁵ Emphasizing the severity of these threats, a government official described the "damage that would be done if the number of flights were restricted or routings altered" as "pretty, pretty colossal."¹⁶⁶

Although environmental protection is seen as an important issue in the EU, overriding interests, particularly economic considerations, ultimately trumped this objective.¹⁶⁷ Export-oriented countries, such as Germany, were interested in maintaining good relations with their

¹⁶⁰ Interview of European Commission official E (26 October 2015).

¹⁶¹ Interviews of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015) and European Commission official E (26 October 2015).

¹⁶² Interview of European Commission official E (26 October 2015).

¹⁶³ Interviews of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015) and Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015); also Lewis & Volcovici, *supra* note 141.

¹⁶⁴ Interview of European Commission official E (26 October 2015).

¹⁶⁵ Interviews of European Commission official G (5 November 2015), European Commission official E (26 October 2015), and an industry representative (6 November 2015).

¹⁶⁶ Interview of a government official (22 November 2017).

¹⁶⁷ Interview of a government official (16 June 2016).

trading partners.¹⁶⁸ Ultimately, the willingness of the EU Member States to stand firm on the inclusion of international flights was limited. Especially those EU Member States with large hub airports, and therefore a large share of US airline traffic, such as the United Kingdom, France, the Netherlands, and Germany, had a strong interest in finding a solution to the dispute.¹⁶⁹ As a result, the alliance of EU Member States fell apart.¹⁷⁰ In the end, faced with significant international opposition, the EU Member States were no longer willing to implement and enforce the Aviation Directive they had adopted together with the European Parliament in 2009. While the Aviation Directive was agreed at the EU level, the enforcement of its provisions, including the enforcement of operating bans imposed on aircraft operators as a last resort, was to be carried out at the level of the EU Member States.¹⁷¹ This discrepancy between policy-making and enforcement meant that “the signals were split”¹⁷² and the international opposition was able to make use of this discrepancy.

By seeking not only to include flights within the EEA but also international flights, the aviation inclusion turned out to be too ambitious, prompting some to speak of “regulatory overreach.”¹⁷³ In fact, according to several European Commission officials, the European Commission included the largest possible geographical scope in its 2006 proposal as a negotiating chip that unexpectedly remained in the legal text until the adoption of the Aviation Directive.¹⁷⁴ The resulting wide scope of the aviation inclusion rendered the implementation of the Aviation Directive more difficult by provoking third country opposition. Third countries perceived the inclusion of international flights in the EU ETS as “extraterritorial application of domestic EU regulation.”¹⁷⁵ Illustrating the wide scope of the initial aviation inclusion, a government official noted: “For example, look at a flight from

¹⁶⁸ *Ibid.*

¹⁶⁹ Interview of European Commission official F (3 November 2015).

¹⁷⁰ *Ibid.*

¹⁷¹ Interview of an industry representative (6 November 2015).

¹⁷² Interview of European Commission official G (5 November 2015).

¹⁷³ Interview of Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015).

¹⁷⁴ Interviews of European Commission official A (27 October 2015) and European Commission official G (5 November 2015).

¹⁷⁵ Interview of a government official (22 November 2017).

Austin, Texas to Dublin. The plane is in EU airspace for I think around 27 minutes on a 7.5 hours flight. Yet they would be *taxed* for the entire flight over the United States, Canada and the brief moments that they are over the North Atlantic.”¹⁷⁶ Therefore, in the words of a European Commission official, the inclusion of international flights “may have been a bridge too far.”¹⁷⁷

To summarize, while policy-makers were able to adopt the inclusion of international flights in the EU ETS, the emergence of strong international opposition during implementation led to their subsequent exemption. The opposition from third countries consisted of a wide range of threats and retaliatory measures that included limitations for EU carriers’ operations in foreign airspace, third country legislation to prevent non-EU airlines from complying with the EU ETS, and the stalling of orders worth billions of dollars from European aircraft manufacturer Airbus. The evidence shows that the international opposition sparked a fear of trade war and retaliation among EU policy-makers that led to the exemption of international flights from the EU ETS.

3.6.2 Fear of Hampering International Climate Efforts

This section examines whether a fear of hampering international climate efforts – either at ICAO or in the context of the negotiations under the UNFCCC – had to be overcome for the initial inclusion of international flights or led to their subsequent exemption from the EU ETS.

Regarding ICAO, a European Commission official indicated that the dispute over the inclusion of international flights in the EU ETS soured the atmosphere at ICAO assemblies and acknowledged that this was of concern for the EU because it is a strong supporter of the UN system and of international cooperation.¹⁷⁸ Nevertheless, another European Commission official doubted that the inclusion of international flights actually hampered international

¹⁷⁶ *Ibid.*

¹⁷⁷ Interview of European Commission official G (5 November 2015).

¹⁷⁸ Interview of European Commission official D (29 October 2015).

action in ICAO. That official regarded regional climate action as a laboratory for subsequent global climate action. The official explained:

The idea that you get started, that you learn, that you get better – I tend to believe that that is the way that sensible policy is made; looking at others’ examples and actually doing something. The idea that you sit down and you draw up a perfect system that is applied by 190 countries all at the same time with no prior experience (...) – I find that less credible as an idea. I do not believe that doing something is an obstacle to global action.¹⁷⁹

With a view to the international climate negotiations under the UNFCCC, a European Commission official confirmed that there was a certain level of concern among EU policy-makers that the aviation dispute might spill over to the UNFCCC negotiations.¹⁸⁰ EU climate negotiators were keen to avoid allowing the aviation dispute to contaminate the UNFCCC negotiations, especially given the fragile state of the UNFCCC negotiations following the 2009 Copenhagen climate summit.¹⁸¹ In addition, there was a worry that those who had no intentions of acting on climate change anyway could use the aviation dispute as a pretext for their inaction.¹⁸² At the same time, however, European Commission officials did not appear to consider these to be concerns of major importance.¹⁸³ In fact, none of the interviewees in this case study cited a fear of hampering international climate efforts as a worry that had to be overcome for the initial inclusion of international flights or a reason for their subsequent exemption from the EU ETS.

A European Commission official pointed out the irony if the inclusion of international flights actually hampered international climate efforts because the EU policy was in fact intended to advance the mitigation of climate change.¹⁸⁴ Resisting this notion, the official

¹⁷⁹ Interview of European Commission official A (27 October 2015).

¹⁸⁰ Interview of European Commission official D (29 October 2015).

¹⁸¹ Interview of European Commission official F (3 November 2015).

¹⁸² *Ibid.*

¹⁸³ Interviews of European Commission official D (29 October 2015) and European Commission official F (3 November 2015).

¹⁸⁴ Interview of European Commission official E (26 October 2015).

commented: “For [the inclusion of international flights] to be portrayed as actually impeding global mitigation efforts would be very perverse.”¹⁸⁵

In summary, there is no evidence to suggest that a fear of hampering international climate efforts was more than a minor concern, if any, for EU policy-makers. Therefore, it appears that no such concern had to be overcome for the initial inclusion of international flights or led to their subsequent exemption from the EU ETS.

3.7 Domestic Political Opposition

This part examines whether domestic political opposition had to be overcome for the initial inclusion of international flights or whether such opposition led to their subsequent exemption from the EU ETS. The discussion first offers an overview of EU stakeholders and their positions (section 3.7.1) before it considers the impact EU stakeholder opposition had on these policy outcomes (section 3.7.2). As will be seen, while policy-makers were initially able to overcome domestic political opposition to the inclusion of international flights, that opposition subsequently led to the exemption of international flights.

3.7.1 EU Stakeholders and Their Positions

Several EU stakeholders opposed the inclusion of international flights. The most notable opponents were the AEA, European flag carriers, such as British Airways and Lufthansa, and European aircraft manufacturer Airbus.¹⁸⁶ At the same time, several EU stakeholders supported the inclusion of international flights. These included the European Low Fares Airline Association (ELFAA), the European Regions Airline Association (ERA), low-cost

¹⁸⁵ *Ibid.*

¹⁸⁶ See Dave Keating, “MEPs Back Deal to Change ETS Rules for Aviation”, *European Voice* (3 April 2014), online: European Voice <<http://www.europeanvoice.com/>>; “Airlines Turn on EU Over Aviation Carbon Trade”, *ENDS Europe* (8 December 2006), online: ENDS Europe <<http://www.endseurope.com/>>; Aimée Turner, “Lufthansa Threatens to Move Hub Operations to Zurich to Evade EU Green Plan”, *Flightglobal* (20 February 2007), online: Flightglobal <<http://www.flightglobal.com/>>; “Commission Dismisses Airlines’ ETS Concerns”, *ENDS Europe* (6 June 2011), online: ENDS Europe <<http://www.endseurope.com/>> [ENDS Europe, “Commission Dismisses”]. Opposition also came from stakeholders outside the EU, which is addressed in section 3.6.1, above.

airlines, such as Ryanair and EasyJet, and the NGOs Transport & Environment and World Wide Fund for Nature (WWF).¹⁸⁷ Table 2 offers an overview of these stakeholder positions.

Table 2: Domestic stakeholder positions in the EU aviation case

Opposition	Support
Flag carriers (incl. British Airways, Lufthansa)	Low-cost airlines (incl. Ryanair, EasyJet)
AEA (flag carriers)	ELFAA (low-cost airlines)
Airbus	ERA (intra-EEA regional airlines)
	NGOs (Transport & Environment, WWF)

The geographical focus of airlines' flight operations explains their positions on the inclusion of international flights because that focus determines their exposure to the carbon price under the EU ETS. For instance, most emissions from Lufthansa and British Airways stem from long-haul flights between the EEA and third countries, whereas Ryanair and EasyJet predominantly operate short-haul flights within the EEA.¹⁸⁸ These differences in flight operations can be shown by comparing the number of free allowances allocated to these aircraft operators under the initial inclusion and under "stop the clock."¹⁸⁹ Compared to the initial inclusion, only 18% of Lufthansa's and 14% of British Airways' flight activities were covered under the second "stop the clock" period, while these figures were 88% for Ryanair and 84% for EasyJet. Therefore, during "stop the clock," the EU ETS covered almost all flight operations of low-cost airlines, such as Ryanair and EasyJet, while the system only covered a fraction of flights from European flag carriers, such as Lufthansa and British Airways. The exemption of international flights may have enabled European flag

¹⁸⁷ See Harrison, *supra* note 14; Keating, *supra* note 186; Aviation Environment Federation et al, "Including Aviation in the EU Emissions Trading Scheme - Joint NGO Statement on Key Improvements" (April 2008).

¹⁸⁸ Interviews of European Commission official G (5 November 2015), European Commission official D (29 October 2015), European Commission official A (27 October 2015), and an industry representative (6 November 2015).

¹⁸⁹ This is because the free allocation granted to each aircraft operator is based on that aircraft operator's flight activity covered by the system; see Annex IV of the *EU ETS Directive*, *supra* note 9.

carriers to cross-subsidize by spreading the EU ETS cost from flights within the EEA across their entire network, which would further explain those carriers' opposition to the inclusion of international flights.¹⁹⁰

The geographical focus of airlines' flight operations shaped their positions not only because of their exposure to carbon pricing, but also due to their exposure to actual or potential retaliation from other countries. Therefore, European flag carriers also opposed the inclusion of international flights due to fears of retaliatory measures from third countries, which was not a concern for airlines operating within the EEA.¹⁹¹

In addition to the geographical focus of their operations, airlines' position on the inclusion of international flights was also determined by the average age of their aircraft fleet. For instance, Ryanair's and EasyJet's fleets are newer, and thus likely more fuel-efficient, than the fleets of European flag carriers, such as British Airways and Lufthansa.¹⁹² Indeed, the average fleet age of Ryanair and EasyJet in 2016 was 6.6 and 7 years, while that of British Airways and Lufthansa is 12.6 and 11 years, respectively.¹⁹³ Similarly, a study that compared the fuel efficiency of 20 major airlines that operated non-stop flights between the US and Europe in 2017 found that British Airways and Lufthansa were the two worst-performing airlines.¹⁹⁴

Due to the geographical focus of their flight operations and the age of their aircraft fleets, European flag carriers would have been exposed to retaliation from other countries and would have faced relatively higher costs from the inclusion of international flights than

¹⁹⁰ Interview of European Commission official D (29 October 2015). For a discussion on the extent of cross-subsidization, see Impact Assessment of Initial Inclusion, *supra* note 50 at 53-54; Wit et al, *supra* note 84 at 132-133.

¹⁹¹ Interviews of an industry representative (6 November 2015) and a government official (22 November 2017). For a discussion of threats and retaliatory measures from third countries, see section 3.6.1, above.

¹⁹² Interviews of European Commission official E (26 October 2015) and Andrew Murphy, Policy Officer for Aviation, Transport & Environment (5 November 2015).

¹⁹³ Planespotters.net, *Airline Fleets*, online: Planespotters.net <<https://www.planespotters.net/>> (retrieved 8 July 2015).

¹⁹⁴ Brandon Graver & Daniel Rutherford, "Transatlantic Airline Fuel Efficiency Ranking, 2017" (2018) International Council on Clean Transportation, White Paper at 7. Ryanair and EasyJet were not included in the study because they do not operate any transatlantic flights.

airlines like Ryanair and EasyJet.¹⁹⁵ Conversely, the exemption of international flights under the “stop the clock” periods removed the risks of retaliation for European flag carriers and placed a higher economic cost on airlines like Ryanair and EasyJet. One European Commission official pointed out that these factors led to a peculiar alignment of interests: “Suddenly we had the low-cost carriers surprisingly in favour of tough environmental action in the rest of the world, which is not what they are known for normally. (...) On one occasion, I had somebody from the low-cost airlines next to me on a panel and he sounded like a green activist.”¹⁹⁶

Given the geographical focus of its flight operations, Lufthansa would be expected to oppose the inclusion of international flights to minimize its exposure to the carbon price under the EU ETS. However, the airline appears to have changed its position several times. In early 2007, following the European Commission’s proposal to include the aviation sector in the EU ETS, Lufthansa opposed that initiative, preferring a global solution to address aviation emissions. In fact, to evade the surrendering of emission allowances for its international flights, the airline threatened to relocate its hub operations from Frankfurt, Germany to Zurich, Switzerland, which lies outside the EEA.¹⁹⁷ A few months later, however, Lufthansa appeared to have changed its position, then seeking to have all flights covered under the system, both international and those within the EEA.¹⁹⁸ In another seeming change of position in early 2012, at a time when opposition from third countries to the aviation inclusion had become increasingly stiff, Lufthansa joined Airbus, Air France, British Airways, and other European airlines and manufacturers of aerospace engines in urging the heads of state of France, Germany, Spain, and the United Kingdom to put the aviation inclusion on hold.¹⁹⁹

¹⁹⁵ Interviews of Andrew Murphy, Policy Officer for Aviation, Transport & Environment (5 November 2015) and European Commission official A (27 October 2015).

¹⁹⁶ Interview of European Commission official F (3 November 2015).

¹⁹⁷ Turner, *supra* note 186.

¹⁹⁸ “Airlines Split on EU Emission Trading Plan”, *ENDS Europe* (4 May 2007), online: [ENDS Europe <http://www.endseurope.com/>](http://www.endseurope.com/).

¹⁹⁹ Marsh, Chaffin & Rabinovitch, *supra* note 118.

This series of seemingly inconsistent positions gave rise to speculation that Lufthansa may have changed its position strategically. Two European Commission officials speculated that Lufthansa may have pursued a strategy of “trying to sink [the system] by being maximalist and relying on external opposition”²⁰⁰ and that the airline may have considered that “the bigger the scope, the more likelihood of failure.”²⁰¹ A leaked document of the US Foreign Service from 2008 provides further evidence of that suspicion: “We believe Lufthansa’s strategy is more about letting the United States sink the ETS/aviation measure than ‘giving in’.”²⁰² Referring to this document, a European Commission official reinforced that belief: “We felt that way as well because Lufthansa supported the biggest possible scope. And since they did not really like the whole system, it was quite clear it was because they realized [by supporting the inclusion of international flights] they would get a lot of external allies against it.”²⁰³ Representatives of Lufthansa did not respond to requests for an interview for this study.

Another example of strategic positioning can be found in British Airways. Early on, and unlike other European flag carriers, British Airways was in favour of including the aviation sector in the EU ETS. Although noting in passing its preference to cover only flights within the EEA, the airline publicly touted its support for the aviation inclusion as early as in 2005, claiming that it “has long believed in responsible management of environmental issues.”²⁰⁴ This, in fact, was months before the European Commission issued its Communication recommending the aviation inclusion. This seemingly unusual course of action may be explained by the airline’s pursuit of airport expansion in the United Kingdom, specifically a third runway at Heathrow Airport. According to two European Commission officials, British Airways recognized that “one of the biggest barriers to airport expansion [were] the climate

²⁰⁰ Interview of European Commission official D (29 October 2015).

²⁰¹ Interview of European Commission official G (5 November 2015).

²⁰² United States, Mission to European Union, “Aviation Emissions: EU Willing to Negotiate, but Wants Everyone to Do It Their Way” (2008), online: WikiLeaks <<https://www.wikileaks.org/>> (retrieved 31 October 2016).

²⁰³ Interview of European Commission official D (29 October 2015).

²⁰⁴ Rod Eddington, “How Airlines Can Fight Climate Change”, *Financial Times* (3 January 2005), online: Financial Times <<http://www.ft.com/>>.

impacts of aviation”²⁰⁵ and “saw participation in the ETS as a license to grow, thereby allowing [the airline to] politically get a third runway approved.”²⁰⁶ A Member of the European Parliament shared this view, who was reported in a leaked document of the US Foreign Service from 2008 as stating that “British Airways agreed with the [European Commission] proposal as the price of Heathrow expansion.”²⁰⁷ Years later, however, in early 2012, British Airways championed the exemption of international flights together with other European airlines, Airbus, and manufacturers of aerospace engines,²⁰⁸ which reflected the airline’s interest in minimizing its compliance obligations under the EU ETS. Representatives of British Airways did not respond to requests for an interview for this study either.

The positions taken by different airline associations correspond to the positions taken by their member airlines. Therefore, European flag carrier association AEA opposed the inclusion of international flights, while ELFAA, among whose members are Ryanair and EasyJet, and ERA, whose membership is composed of smaller airlines operating within the EEA, supported the inclusion of international flights. European aircraft manufacturer Airbus opposed the inclusion of international flights due to concerns about retaliation from China that stalled aircraft orders worth billions of dollars, which had been placed by state-owned Chinese airlines.²⁰⁹ By contrast, NGOs supported the inclusion of international flights because they sought to maximize the environmental benefits of the aviation inclusion by covering the highest possible amount of emissions under the system.²¹⁰

²⁰⁵ Interview of European Commission official G (5 November 2015).

²⁰⁶ Interview of European Commission official D (29 October 2015).

²⁰⁷ United States, Mission to European Union, *supra* note 202.

²⁰⁸ Marsh, Chaffin & Rabinovitch, *supra* note 118.

²⁰⁹ China Daily, *supra* note 121. For more details on these concerns, see section 3.6.1, above.

²¹⁰ Interviews of Andrew Murphy, Policy Officer for Aviation, Transport & Environment (5 November 2015) and Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

3.7.2 Impact of EU Stakeholder Opposition

Initially, strong support from EU policy-makers for the inclusion of international flights in the EU ETS was able to overcome the opposition from EU stakeholders. Both the European Commission and the European Parliament strongly favoured the inclusion of international flights. The European Commission supported the inclusion of international flights and defended it against both domestic and international opposition.²¹¹ Likewise, the European Parliament consistently sought to maximize the environmental ambition of the aviation inclusion in the EU ETS by advocating the inclusion of international flights.²¹² Essentially, because of the significant growth in emissions from the aviation sector, and given that no mitigation action had been agreed within ICAO, policy-makers sought to address the sector's growing climate change impact.²¹³

As the implementation of the aviation inclusion progressed, however, the opposition from EU stakeholders to the inclusion of international flights grew. As the international opposition raised the stakes through threats and retaliatory measures,²¹⁴ key EU stakeholders began to lobby policy-makers to exempt international flights from the EU ETS. Several European Commission officials and an NGO representative pointed out two EU stakeholders

²¹¹ See e.g. "Aviation 'to Join EU Climate Trading Scheme'", *ENDS Europe* (31 May 2005), online: ENDS Europe <<http://www.endseurope.com/>>; "Aviation 'in EU ETS by 2010' Says Dimas", *ENDS Europe* (9 November 2006), online: ENDS Europe <<http://www.endseurope.com/>>; ENDS Europe, "Commission Dismisses", *supra* note 186; "EU Defends US Airlines' Inclusion in ETS Scheme", *ENDS Europe* (5 July 2011), online: ENDS Europe <<http://www.endseurope.com/>>; "EU 'Won't Give in to Threats Over Airlines and ETS'", *ENDS Europe* (21 October 2011), online: ENDS Europe <<http://www.endseurope.com/>>; Connie Hedegaard, "'Polluter Pays' Is the Only Principle That Can Limit Aviation Emissions", *The Guardian* (4 April 2012), online: The Guardian <<http://www.theguardian.com/>>.

²¹² See e.g. "MEPs Push for Inclusion of All EU Flights in ETS", *ENDS Europe* (30 May 2006), online: ENDS Europe <<http://www.endseurope.com/>>; "MEPs Urge Stand-Alone Aviation CO2 Trading", *ENDS Europe* (4 July 2006), online: ENDS Europe <<http://www.endseurope.com/>>; "MEP Ups Ambition on EU Airline Gas Trade Plan", *ENDS Europe* (19 June 2007), online: ENDS Europe <<http://www.endseurope.com/>>; "MEPs Take Tough Stance on Airline Emissions", *ENDS Europe* (26 June 2007), online: ENDS Europe <<http://www.endseurope.com/>>; "MEPs Toughen Airline Emission Trade Plan", *ENDS Europe* (3 October 2007), online: ENDS Europe <<http://www.endseurope.com/>>; Valerie Flynn, "MEP Proposes Stricter CO2 Rules for Aviation", *ENDS Europe* (27 November 2013), online: ENDS Europe <<http://www.endseurope.com/>>; Valerie Flynn, "EP Committee Backs Stronger ETS Airspace Rules", *ENDS Europe* (30 January 2014), online: ENDS Europe <<http://www.endseurope.com/>>.

²¹³ See Impact Assessment of Initial Inclusion, *supra* note 50 at 6-7; Aviation Communication, *supra* note 6 at 4-5.

²¹⁴ See section 3.6.1, above.

in particular for their influence in the exemption of international flights from the EU ETS: Lufthansa and Airbus.²¹⁵ While Lufthansa sought to minimize its exposure to carbon pricing under the EU ETS and to actual or potential retaliation from other countries, Airbus opposed the inclusion of international flights due to Chinese retaliation that stalled aircraft orders worth billions of dollars.

Lufthansa was “one of the key lobbying forces in Europe” according to a European Commission official.²¹⁶ In 2012, Lufthansa Group employed a workforce of over 117,000 and generated revenues of more than EUR 30bn.²¹⁷ A government official stated that the airline had a “very strong interest in exempting international flights” and that “in Germany, Lufthansa has a good direct line to government officials.”²¹⁸ Comparing the influence of EU flag carriers, such as Lufthansa, versus that of low-cost airlines, such as Ryanair and EasyJet, a European Commission official explained: “We have got 50 years of flag carriers being very much associated with countries and they have stronger political connections. In my experience, Ryanair is not as popular in political terms as other airlines. These relationships take decades to build and the legacy carriers, the flag carriers, have much greater political clout.”²¹⁹

Regarding Airbus, the company employed a workforce of over 73,000 in 2012 and generated revenues of more than EUR 38bn in that year.²²⁰ European Commission officials described the company as “a very significant part of [the opposition],”²²¹ an “industrial champion” that has “very high access in government,”²²² and therefore as “very

²¹⁵ Interviews of European Commission official D (29 October 2015), European Commission official A (27 October 2015), European Commission official G (5 November 2015), and Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015).

²¹⁶ Interview of European Commission official F (3 November 2015).

²¹⁷ Lufthansa Group, “Annual Report 2012” (2013) at 28, 51.

²¹⁸ Interview of a government official (16 June 2016).

²¹⁹ Interview of European Commission official A (27 October 2015).

²²⁰ European Aeronautic Defence and Space Company, “Annual Report 2012: Registration Document” (2013) at 55, 71.

²²¹ Interview of European Commission official D (29 October 2015).

²²² Interview of European Commission official A (27 October 2015).

instrumental”²²³ in the exemption of international flights from the EU ETS. In September 2012, following a meeting with Airbus representatives who warned of serious commercial consequences for the European aircraft manufacturer, government officials from France, Germany, Spain, and the United Kingdom signalled they would recommend suspending the application of the EU ETS for international flights.²²⁴ Although German and British government officials subsequently denied these reports,²²⁵ European Commission officials confirmed that the company was “very effective in lobbying the Airbus states”²²⁶ and noted that “especially those [Airbus] manufacturing countries had a particularly strong influence over the process [of exempting international flights].”²²⁷ Two months later, the European Commission tabled its first “stop the clock” proposal.

In fact, in a letter sent to the Chinese government only four days after that proposal, Airbus claimed credit for its successful lobbying efforts.²²⁸ Also in the context of “stop the clock” in November 2013, France, Germany, and the United Kingdom opposed the European Commission’s proposal to apply the EU ETS to all flights within the EEA’s regional airspace and instead favoured the continued exemption of international flights.²²⁹ An NGO representative summarized the company’s role as follows: “Airbus is owned by four governments: [France, Germany, Spain, and the United Kingdom]. They have direct links to heads of government. And they know how to use this [influence].”²³⁰ The company’s political influence was further illustrated by reports that Airbus “was given special privileges by the [European] Commission in determining the [EU’s] position [for negotiations at

²²³ Interview of European Commission official D (29 October 2015).

²²⁴ “Europe Considers Suspending Airline Emissions Charge”, *The Guardian* (12 September 2012), online: The Guardian <<http://www.theguardian.com/>>.

²²⁵ “UK, Germany Deny Giving In to Anti-ETS Nations”, *ENDS Europe* (13 September 2012), online: ENDS Europe <<http://www.endseurope.com/>>.

²²⁶ Interview of European Commission official G (5 November 2015).

²²⁷ Interview of European Commission official E (26 October 2015).

²²⁸ Letter from Airbus to Chinese Minister, *supra* note 122; see also Lewis, *supra* note 123.

²²⁹ Valerie Flynn, “Germany, UK, France Oppose ETS Airspace Plan”, *ENDS Europe* (28 November 2013), online: ENDS Europe <<http://www.endseurope.com/>>.

²³⁰ Interview of Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015).

ICAO].”²³¹ According to correspondence between Airbus and the European Commission, “Airbus directly amended the EU’s negotiating position for ICAO [in late 2015] (...) after checking with Germany and Spain, which along with France are known to lobby strongly on behalf of Airbus, which is a major employer in all three nations.”²³²

Policy-makers and an NGO representative who participated in the decision-making process considered EU stakeholder opposition from European flag carriers and Airbus important in explaining the exemption of international flights from the EU ETS.²³³ Emphasizing the political influence of this opposition, a European Commission official explained: “The EU Member States were lobbied very hard by the aviation industry. And the transport departments in national governments often align their interests with those of their industry, of the aviation industry in their country or the flag carrier of their country.”²³⁴ A government official confirmed this by indicating that the airline industry had a strong influence on the transport ministry in the interviewee’s jurisdiction.²³⁵ Another government official also stated that European flag carriers were influential in the exemption of international flights.²³⁶

Whether EU stakeholder opposition would have been sufficient to induce the exemption of international flights in the absence of international opposition remains unclear. Similarly, it appears uncertain whether opposition from third countries alone would have led to the exemption of these flights during the implementation of the aviation inclusion without EU stakeholder opposition.

In summary, strong support from EU policy-makers for the inclusion of international flights in the EU ETS was able to overcome opposition from EU stakeholders initially. As

²³¹ John McGarrity, “EC Gave Airbus ‘Privileges’ to Write CO2 Rules, Says NGO”, *ENDS Europe* (29 November 2017), online: ENDS Europe <<https://www.endseurope.com/>>.

²³² *Ibid.*

²³³ Interviews of European Commission official E (26 October 2015), European Commission official D (29 October 2015), European Commission official A (27 October 2015), and Bill Hemmings, Programme Manager for Aviation & Shipping, Transport & Environment (5 November 2015).

²³⁴ Interview of European Commission official E (26 October 2015).

²³⁵ Interview of a government official (16 June 2016).

²³⁶ Interview of a government official (22 November 2017).

the implementation of the aviation inclusion progressed, however, international opposition grew and key EU stakeholders lobbied policy-makers to exempt international flights. Lufthansa sought to minimize its exposure to carbon pricing under the EU ETS and to actual or potential retaliation from other countries, and Airbus opposed the inclusion of international flights due to Chinese retaliation that stalled aircraft orders worth billions of dollars. Therefore, while policy-makers were initially able to overcome domestic political opposition to the inclusion of international flights, that opposition subsequently led to the exemption of international flights. Therefore, domestic political opposition explains the latter policy outcome.

3.8 Conclusion

This chapter studied the inclusion of international flights in the EU ETS, which offers a rare example of an adopted domestic climate policy that is comparable to a BCA. In 2008, the EU passed a law to include the aviation sector in the EU ETS from 2012 onwards, covering both flights within the EEA and international flights. In 2013, however, the EU effectively exempted international flights from the EU ETS dating back to the launch of the system. The EU subsequently extended this derogation on two separate occasions and it is currently effective until the end of 2023. Therefore, unlike originally intended, the system never effectively covered international flights in addition to flights within the EEA. This chapter examined the factors leading to the initial inclusion and subsequent exemption of international flights.

The evidence shows that strong support from policy-makers for the inclusion of international flights in the EU ETS was able to overcome opposition from EU stakeholders initially. However, the emergence of vigorous international opposition during the implementation of the aviation inclusion sparked fears of trade war and retaliation that led to the subsequent exemption of international flights. The opposition from third countries consisted of a wide range of threats and retaliatory measures that included limitations for EU carriers' operations in foreign airspace, third country legislation to prevent non-EU airlines from complying with the EU ETS, and the stalling of orders worth billions of dollars from European aircraft manufacturer Airbus. Key EU stakeholders, notably Lufthansa and Airbus,

successfully lobbied policy-makers to exempt international flights. While Lufthansa sought to minimize its exposure to carbon pricing under the EU ETS and to actual or potential retaliation from other countries, Airbus opposed the inclusion of international flights due to retaliation that stalled significant orders of its aircraft.

By contrast, WTO law neither presented an obstacle to the inclusion of international flights nor explained the subsequent exemption from the EU ETS. Furthermore, there is no evidence that concerns about the policy's administrative complexity or effectiveness in reducing emissions explain these policy outcomes. Likewise, there is no evidence that policy-makers or stakeholders preferred any alternative measures to reduce emissions from international flights. Lastly, a fear of hampering international climate efforts is unlikely to have been more than a minor concern, if any, for EU policy-makers.

The EU's experience with the inclusion of international flights in the EU ETS shows that policy-makers may encounter significant political opposition during the implementation of a BCA, both from third countries and domestic stakeholders. This case suggests that, although adopting a BCA may be politically feasible, this may not necessarily hold true for its implementation. Of course, even if adopted, the potentially significant benefits of a BCA may not materialize until its implementation in practice.

The next chapter investigates BCAs for stationary installations in the EU ETS, which have not been used despite recurring, albeit relatively muted, debate of such measures throughout the existence of the system.

4 Border Carbon Adjustments for Stationary Installations in the European Union Emissions Trading System

4.1 Introduction

This chapter examines the EU's experience with BCAs in the context of stationary installations in the bloc's cap-and-trade system, which has been operational since 2005. BCAs for stationary installations, or manufacturing industries, such as cement and steel, have been the subject of recurring, albeit relatively muted, debate throughout the existence of the system. Nevertheless, no BCAs have been used for any stationary installations in the EU ETS. By testing empirically the potential barriers to BCAs that were set out in chapter 2, this case study aims to determine the factors leading to this policy outcome.

The evidence shows that stakeholders' predominantly negative attitude towards BCAs for stationary installations and policy-makers' limited willingness to engage in a discussion on these measures prevented their adoption. Industry stakeholders preferred free allocation as an alternative to BCAs, which offered them significant financial value, and policy-makers enjoyed the political advantages that came with this value. At the same time, the use of free allocation avoided the risk of repercussions for international relations. Particularly opposed by developing countries, BCAs raised the prospect of trade wars and retaliation, and policy-makers were also concerned about BCAs' negative impact on the atmosphere at the international climate negotiations.

The EU's experience with BCAs for stationary installations in its ETS indicates that concerns about repercussions for international relations may prevent policy-makers from adopting these measures. Similarly, the availability, and indeed allure, of free allocation as an alternative measure may make it difficult for policy-makers to adopt BCAs.

Interviews with 15 individuals informed this case study. This includes five government officials, five industry representatives, two representatives of the environmental community, one think tank expert, one consultant, and one academic. Twelve individuals were consulted in person in Brussels, Belgium, in October and November 2015, while three interviews were conducted over the phone in June 2016.

The remainder of this chapter proceeds as follows. Part 4.2 offers a chronological overview of the EU ETS, presents the main design parameters of the system, and describes the role BCAs for stationary installations have played in it to date. Parts 4.3 to 4.7 examine why no such BCAs have been adopted in this case, specifically whether this is due to concerns about WTO law (part 4.3), practical concerns about the administrative complexity of BCAs or effectiveness to achieve their potential benefits (part 4.4), concerns about repercussions for international relations (part 4.5), a preference for alternative measures (part 4.6), or domestic political opposition (part 4.7). Part 4.8 concludes by summarizing the case study's findings.

4.2 Chronological Overview and Policy Details

In March 2000, the European Commission issued a Green Paper to launch a discussion between policy-makers and stakeholders on the use of cap-and-trade in the EU.¹ In this document, the EU executive discussed a number of basic design options for such a policy. In October 2001, the European Commission tabled its proposal to establish the EU ETS.² Two years later, in October 2003, the European Parliament and the Council of the EU adopted Directive 2003/87/EC establishing the EU ETS,³ and the system became operational in January 2005. At the start of the second trading period in January 2008, the European Commission proposed to revise the system.⁴ The European Parliament and the Council of the EU adopted Directive 2009/29/EC to revise the EU ETS in April 2009,⁵ and the system's

¹ EU, *Green Paper COM(2000)87 of the European Commission of 8 March 2000 on Greenhouse Gas Emissions Trading Within the European Union*.

² EU, *Proposal COM(2001)581 of the European Commission of 23 October 2001 for a Directive of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61/EC [EU ETS Proposal]*.

³ EU, *Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61/EC*, [2003] OJ, L 275/32 [*EU ETS Directive*].

⁴ EU, *Proposal COM(2008)16 of the European Commission of 23 January 2008 for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emission Allowance Trading System of the Community*.

⁵ EU, *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*, [2009] OJ, L 140/63.

third trading period commenced in January 2013. In July 2015, the European Commissions proposed to further revise the system,⁶ and the European Parliament and the Council of the EU formally amended the EU ETS by adopting Directive (EU) 2018/410 in February 2018.⁷

The EU ETS regulates emissions from more than 11,000 energy-intensive installations in the power sector and in manufacturing industry.⁸ It covers installations in all EU Member States plus Iceland, Liechtenstein, and Norway.⁹ The system-wide emissions cap in 2013 was set at 2,084 Mt CO₂-eq and is reduced annually from that level to achieve a 21% reduction of emissions under the EU ETS by 2020 compared to 2005,¹⁰ and a 43% reduction by 2030.¹¹ Auctioning became the default allocation method in 2013, with 57% of emission allowances to be auctioned between 2013 and 2020, and the remaining 43% available for distribution free of charge based on greenhouse gas performance benchmarks.¹² In October 2014, the EU heads of state agreed to continue allocating emission allowances free of charge beyond 2020 to counter the risk of carbon leakage,¹³ and the EU legislators retained the existing share of free allocation until 2030 in their revision of the EU ETS in February 2018.¹⁴

Although no BCAs have been used for stationary installations in the EU ETS,¹⁵ these measures have been debated periodically, albeit not vigorously, since the inception of the

⁶ EU, *Proposal COM(2015)337 of the European Commission of 15 July 2015 for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC to Enhance Cost-Effective Emission Reductions and Low-Carbon Investments*.

⁷ EU, *Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 Amending Directive 2003/87/EC to Enhance Cost-Effective Emission Reductions and Low-Carbon Investments, and Decision (EU) 2015/1814*, [2018] OJ, L 76/3 [2018 Revision of EU ETS Directive].

⁸ EU, European Commission, “EU ETS Handbook” (2015), online: European Commission <<http://ec.europa.eu/>> (retrieved 10 January 2017) at 20 [EU ETS Handbook]. Since January 2012, the EU ETS also covers emissions from the aviation sector; see chapter 3.

⁹ EU ETS Handbook, *supra* note 8 at 20.

¹⁰ *Ibid* at 22.

¹¹ Recital 2 of 2018 Revision of EU ETS Directive, *supra* note 7.

¹² EU ETS Handbook, *supra* note 8 at 24. For details on the rules for free allocation in the third trading period, see Stefan Pauer, “Development and Application of Greenhouse Gas Performance Benchmarks in the European Union Emissions Trading Scheme” (2012) 1:3 Economics of Energy & Environmental Policy 105.

¹³ EU, *Conclusions EUCO 169/14 of the European Council of 24 October 2014* at point 2.4 [European Council].

¹⁴ See recital 8 of 2018 Revision of EU ETS Directive, *supra* note 7.

¹⁵ For the aviation sector in the EU ETS, the inclusion of international flights is a measure comparable to a BCA, which the EU passed into law but subsequently suspended and never applied in practice; see chapter 3.

cap-and-trade system. The system's 2009 revision introduced a provision that mandated the European Commission to consider the introduction of BCAs on imports.¹⁶ In fact, this provision was the remnant of a fully elaborated BCA the European Commission had drafted but ultimately decided not to include in its January 2008 proposal to revise the EU ETS.¹⁷ In response to this provision, the European Commission rejected the introduction of BCAs on imports in May 2010 and instead recommended the continued use of free allocation to address the risk of carbon leakage.¹⁸ Similarly, the system's 2018 revision requires the European Commission to keep the EU ETS Directive, including its carbon leakage measures, under ongoing review "in the light of the implementation of the Paris Agreement and the development of carbon markets in other major economies."¹⁹ One of the recitals in the amending Directive indicates that this could include the consideration of BCAs on imports, but the corresponding article makes no mention of BCAs.²⁰

The political discussions of BCAs in the EU almost exclusively revolved around BCAs on imports. Indeed, BCAs on exports hardly featured in the discourse on BCAs in the EU. There may be several explanations for this peculiarity: those driving the discussions on BCAs may focus on protecting domestic production rather than on improving their competitiveness in foreign markets,²¹ possibly because competitiveness impacts on domestic markets are seen as a greater threat than such impacts on foreign markets;²² there may be a lack of familiarity with or a misunderstanding of the concept of BCAs on exports;²³ or

¹⁶ Article 10b of the *EU ETS Directive* (as amended in 2009), *supra* note 3. Specifically, this provision concerns the "inclusion in the [EU ETS] of importers of products [whose production is covered by the EU ETS]."

¹⁷ Interviews of European Commission official B (27 October 2015) and European Commission official A (27 October 2015). On the reasons for doing so, see section 4.5.2, below.

¹⁸ EU, *Communication COM(2010)265 from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions of 26 May 2010 on Analysis of Options to Move Beyond 20% Greenhouse Gas Emission Reductions and Assessing the Risk of Carbon Leakage* at 10-12 [European Commission Communication].

¹⁹ Article 30 of the *EU ETS Directive*, *supra* note 3.

²⁰ See recital 24 of *2018 Revision of EU ETS Directive*, *supra* note 7.

²¹ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²² Charles E McLure, "Border Adjustments for Carbon Taxes and the Cost of Emissions Permits" in Gilbert E Metcalf, ed, *US Energy Tax Policy* (Cambridge: Cambridge University Press, 2010) 193 at 198.

²³ Interview of Claude Loréa, Deputy Chief Executive & Director of Industrial Policy, Cembureau (28 October 2015).

rebating exports may be considered environmentally perverse if the exported goods are not subject to carbon pricing abroad.²⁴

In summary, the EU legislators adopted the EU ETS in 2003 and the system became operational in 2005. Although BCAs have been debated since the inception of the EU ETS, no BCAs have been used for stationary installations in the system. The following parts consider the reasons behind this policy outcome.

4.3 Concerns about WTO Law

This part examines whether concerns about WTO law led to the absence of BCAs for stationary installations in the EU ETS. As will be seen, the evidence shows that there were no such concerns among policy-makers that could explain the policy outcome.

As described in chapter 2, a substantial body of literature exists that addresses the compliance of BCAs with the rules of the WTO.²⁵ Although designing BCAs to be WTO-compliant may not be a trivial exercise, leading experts in this area of law indicate that BCAs can indeed be designed to be WTO-compliant. Furthermore, even if BCAs were to be found illegal by a WTO panel, the legal consequences are relatively limited.

Over the years, the European Commission addressed BCAs in various policy documents. However, perhaps unsurprisingly given that the discourse on BCAs in the EU ETS never developed into a veritable debate, none of these documents offer a detailed analysis of these measures. The relevant remarks on BCAs are brief, generalized, and vague, and the European Commission consistently mentioned WTO law as one among several obstacles to BCAs.

For instance, in the impact assessment accompanying its January 2008 proposal to revise the EU ETS, the European Commission assessed different policy options, which included a brief discussion of BCAs. The European Commission noted that “[a] careful

²⁴ Interviews of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015) and European Commission official C (27 October 2015). On the environmental character of export rebates, see section 2.3.5, above.

²⁵ See section 2.3.1, above.

analysis of legal implications, in particular WTO compatibility, would (...) be required”²⁶ and cautioned about “considerations with respect to WTO compatibility.”²⁷ An April 2010 report of the European Commission on innovative financing options briefly addressed BCAs as a possible source of revenue. The report highlighted “a considerable number of drawbacks”²⁸ with these measures, one of which was “concerns about their legal compatibility with WTO rules.”²⁹ Furthermore, the European Commission’s May 2010 Communication, which considered the introduction of BCAs on imports as mandated during the 2009 revision of the EU ETS, highlighted a series of obstacles to BCAs, one of which was that these measures “would need to be very carefully designed to ensure that [they are] fully compatible with WTO requirements.”³⁰ Although the European Commission stated that “[t]he WTO has signalled that there may not be a problem of principle [with WTO compatibility],” it indicated that “modalities seem to matter significantly,” that ensuring WTO compliance is “potentially complex,” and that “legal issues may severely constrain what [BCAs] could be implemented.”³¹

In a March 2015 response to a European Parliament resolution on the EU steel sector, the European Commission briefly stated that, although it considered the continued use of free allocation “the best way” to address the risk of carbon leakage in the absence of a comprehensive global climate agreement, BCAs “remain part of the EU toolbox as they can in principle be designed in a WTO-compatible way.”³² When the European Commission

²⁶ EU, *Impact Assessment SEC(2008)52 of the European Commission of 23 January 2008 Accompanying the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC so as to Improve and Extend the EU Greenhouse Gas Emission Allowance Trading System* at 118 [Impact Assessment of 2008 Proposal to Revise the EU ETS].

²⁷ *Ibid* at 119.

²⁸ EU, *Staff Working Document SEC(2010)409 of the European Commission of 1 April 2010 on Innovative Financing at a Global Level* at 34 [European Commission on Innovative Financing].

²⁹ *Ibid* at 49.

³⁰ European Commission Communication, *supra* note 18 at 12.

³¹ EU, *Staff Working Document SEC(2010)650 of the European Commission of 26 May 2010 Accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Analysis of Options to Move Beyond 20% Greenhouse Gas Emission Reductions and Assessing the Risk of Carbon Leakage: Background Information and Analysis (Part II)* at 72 [European Commission Communication Background (Part II)].

³² EU, *Response of the European Commission of 10 March 2015 to the Resolution by the European Parliament on the Steel Sector in the EU* at 3 [European Commission Response].

tabled its July 2015 proposal to revise the EU ETS, it addressed BCAs in a footnote of the accompanying impact assessment, stating that BCAs “would be in potential conflict with [WTO] rules,” besides other issues making these measures “a significantly less appropriate tool” than the continued use of free allocation.³³ Similarly, as part of the 2018 revision of the EU ETS, one of the recitals in the amending Directive qualifies that the European Commission could consider BCAs on imports “provided that such measures are fully compatible with the rules of the World Trade Organisation.”³⁴

Therefore, with the exception of the European Commission’s response to the European Parliament in March 2015, in which it explicitly acknowledged that WTO compatibility could be ensured, these policy documents appear to suggest that WTO law may indeed present a barrier to BCAs. However, a markedly different picture emerged from interviews with European Commission officials.

European Commission officials emphasized that the institution thoroughly considered the compatibility of BCAs with WTO law.³⁵ They acknowledged that ensuring WTO compliance may not be trivial,³⁶ and they also noted that the EU executive would consider it a problem if a WTO panel found WTO law to be violated.³⁷ Nevertheless, European Commission officials did not consider WTO law to be an obstacle to BCAs. One official asserted: “I am confident that if we wanted to design a WTO[-compliant BCA], we could do so. (...) I am confident it can be written to be WTO-compliant.” Another official stated: “[A BCA] can be introduced in a WTO-compatible manner. It can be. Otherwise we would not consider it part of the toolbox.”³⁸ Yet another official elaborated further:

³³ EU, *Impact Assessment SWD(2015)135 of the European Commission of 15 July 2015 Accompanying the Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC to Enhance Cost-Effective Emission Reductions and Low-Carbon Investments* at 139, n 176 [Impact Assessment of 2015 Proposal to Revise the EU ETS].

³⁴ Recital 24 of *2018 Revision of EU ETS Directive*, *supra* note 7.

³⁵ Interviews of European Commission official B (27 October 2015) and European Commission official A (27 October 2015).

³⁶ Interview of European Commission official B (27 October 2015).

³⁷ Interviews of European Commission official B (27 October 2015), European Commission official A (27 October 2015), and European Commission official C (27 October 2015).

³⁸ Interview of European Commission official C (27 October 2015).

There used to always be some notion [among EU stakeholders] that [a BCA] would not be compatible with the WTO. And that is where we said: “No, you can – you *can* make it WTO-compatible.” We think you can. (...) If we really were convinced it would not [be possible], we would have said so very bluntly: “Forget it.” I think it is now a common understanding that it is not because of WTO incompatibility that [a BCA] cannot or should not be considered.³⁹

In fact, a European Commission official pointed out that concerns about WTO law may be alleged by those who oppose BCAs for other reasons: “The WTO is often used as an argument why you cannot do anything.”⁴⁰ By alleging concerns about WTO law as an additional argument against BCAs, opponents may use them as a smoke screen to conceal other concerns and cast doubt on whether the WTO-compliant design of BCAs is possible, against assertions to the contrary from legal experts. In fact, in light of the aforementioned statements European Commission officials made in interviews, the EU executive might have used alleged concerns about WTO law as a smoke screen in its policy documents.⁴¹ Another instance suggesting this tactic might be found in a news article of February 2016, which reported that EU Climate and Energy Commissioner Miguel Arias Cañete “reiterated the Commission’s opposition to [BCAs] (...), adding that it is not clear whether [they] would even be legal under [WTO] rules.”⁴²

Also EU stakeholders might have alleged concerns about WTO law to use them as a smoke screen and cast doubt on whether the WTO-compliant design of BCAs is possible. For instance, in a position paper umbrella association BusinessEurope cited a “high risk of WTO incompatibility” along with several other drawbacks.⁴³ Another example might be found in a statement made by a representative of the non-ferrous metals industry: “I think it is also not very clear from the legal point of view if those kind of measures would be WTO compliant or not. We hear a lot of different opinions from that perspective. So I think there

³⁹ Interview of European Commission official B (27 October 2015).

⁴⁰ Interview of European Commission official A (27 October 2015).

⁴¹ There are no indications that this is due to influence from stakeholders opposing BCAs.

⁴² Simon Roach, “Commission Rebuffs Steel ETS Concerns”, *ENDS Europe* (18 February 2016), online: *ENDS Europe* <<http://www.endseurope.com/>>.

⁴³ BusinessEurope, “BusinessEurope Position on the Issue of ‘Carbon Leakage’” (27 June 2008), online: *BusinessEurope* <<https://www.bes-europe.eu/>> at 2 [BusinessEurope on Carbon Leakage].

are also concerns that [BCAs] might be challenged at the WTO level and then create even more concerns or problems afterwards.”⁴⁴

To summarize, although policy documents of the European Commission appear to suggest that WTO law may present a barrier to BCAs, interviews with European Commission officials revealed that the EU executive was well aware that WTO compliance could be ensured. While the level of effort required to design BCAs in compliance with WTO law is unclear, European Commission officials did not consider WTO law to be an obstacle to BCAs. However, opponents of BCAs might have alleged concerns about WTO law to use them as a smoke screen and cast doubt on whether the WTO-compliant design of BCAs is possible, despite legal experts’ assertions to the contrary. Nevertheless, the evidence indicates that there were no concerns about WTO law among policy-makers that led to the absence of BCAs for stationary installations in the EU ETS.

4.4 Practical Concerns

This part examines whether practical difficulties led to the absence of BCAs for stationary installations in the EU ETS. The discussion first addresses potential concerns about the administrative complexity of implementing and administering BCAs (section 4.4.1) before turning to potential concerns about the effectiveness of BCAs to achieve their potential benefits (section 4.4.2). As will be seen, the evidence shows that none of these concerns can explain the policy outcome.

4.4.1 Administrative Complexity

Concerns about the administrative complexity of implementing and administering BCAs were cited by both policy-makers and industry stakeholders. For example, EU Commissioner for Trade Peter Mandelson stated that BCAs would be “extremely difficult to administer and

⁴⁴ Interview of an Eurometaux representative (20 June 2016).

enforce” and “almost impossible to implement in practice.”⁴⁵ The European Commission’s tax department called them “nearly impossible to implement”⁴⁶ and incoming EU Commissioner for Trade Karel de Gucht cautioned that BCAs “will run into many practical problems.”⁴⁷ Similarly, in interviews, European Commission officials pointed out the administrative complexity of implementing and administering BCAs.⁴⁸

The European Commission noted “practical difficulties [in setting] the level of allowances to be surrendered by importers, deciding (...) to which imports from which countries or source the system would apply and setting up an effective monitoring system”⁴⁹ and it raised further administrative difficulties in another document: “[The] administrative costs could be very high as the tax rate would have to vary according to the embodied emissions of products, with likely difficulties of defining and enforcing reliable rules of origin and of coping with the variety of climate-related instruments applied in different countries.”⁵⁰ The EU executive emphasized the potential practical difficulties in another report:

Effective [BCAs] (...) would be difficult to design, implement and enforce. It would be challenging to determine which imports from which countries or sources the system would apply to. There would be practical difficulties to set the right level of allowances to be surrendered by importers. (...) [BCAs] would require the emissions in installations in third countries to be monitored and reported according to ETS requirements. (...) Monitoring of emissions entails a clear definition of a product, installation and process boundary, notably how far up and downstream the process should be covered, and decisions on an accounting protocol, e.g. what emission factors for fuels should be used. While monitoring such information in the EU, where robust monitoring capacity is put in place under the EU ETS rules, is

⁴⁵ EU, *Speech 06/805 of EU Trade Commissioner Peter Mandelson of 18 December 2006 “Trade Policy and Climate Change”* at 6 [Mandelson Speech 2006]; EU, *Speech 08/442 of EU Trade Commissioner Peter Mandelson of 18 September 2008 “Is Climate Change Policy Incompatible With Free Trade?”* at 3 [Mandelson Speech 2008].

⁴⁶ “French Push for CO2 Border Tax Meets Opposition”, *ENDS Europe* (12 May 2010), online: ENDS Europe <<http://www.endseurope.com/>> [ENDS Europe, “French Push”].

⁴⁷ “EU Trade Chief-Designate Rejects Carbon Border Tariffs”, *EurActiv* (13 January 2010), online: EurActiv <<http://www.euractiv.com/>>.

⁴⁸ Interviews of European Commission official B (27 October 2015), European Commission official A (27 October 2015), and European Commission official C (27 October 2015).

⁴⁹ Impact Assessment of 2008 Proposal to Revise the EU ETS, *supra* note 26 at 119.

⁵⁰ European Commission on Innovative Financing, *supra* note 28 at 34.

already challenging, the same effort imposed on third, especially developing, countries may be unfeasible. (...) Moreover, all the monitoring would not only have to be done at installation but also at product level in case an installation is producing multiple products.⁵¹

EU Member State officials were reported to share concerns about the administrative complexity of BCAs.⁵² Finland, for instance, noted that BCAs “could turn out to be an overly complicated approach” to counter carbon leakage.⁵³ Also industry stakeholders cited concerns about the administrative complexity of BCAs. For instance, umbrella association BusinessEurope claimed that BCAs would imply a “significant administrative burden to the companies involved,”⁵⁴ “be very complex to implement,” and “create a bureaucratic and administrative nightmare for importers.”⁵⁵ Executives of oil and gas company BP showed concerns about “the complexity of assessing the [carbon] content of a product”⁵⁶ and held that BCAs “could prove too complex to implement for many sectors.”⁵⁷ Several interviewees representing different industry associations as well as a consultant echoed these concerns.⁵⁸

These claims appear to suggest that the administrative complexity of BCAs prevented their introduction for stationary installations in the EU ETS. However, there is evidence that this was, in fact, not the case. As demonstrated by existing research, which offers pragmatic and creative solutions to address administrative complexity concerns, the administrative

⁵¹ European Commission Communication Background (Part II), *supra* note 31 at 72-73.

⁵² Interview of a consultant (17 June 2016).

⁵³ Finland, Submission to European Commission’s Consultation of 1 February 2010 in Preparation of an Analytical Report on the Impact of the International Climate Negotiations on the Situation of Energy Intensive Sectors, online: European Commission <<http://ec.europa.eu/>> (retrieved 14 August 2015) at 2.

⁵⁴ BusinessEurope on Carbon Leakage, *supra* note 43 at 2.

⁵⁵ Reinhard Quick & Karsten Neuhoff, “If Copenhagen Fails, Should the EU Adopt a CO2 Border Tax?”, *ENDS Europe* (30 November 2009), online: ENDS Europe <<http://www.endseurope.com/>>.

⁵⁶ Iain Conn, “Energy and Climate Policy After Copenhagen: A Pragmatic Response” (Speech delivered at Sofitel, Brussels, 21 January 2010), online: BP <<http://www.bp.com/>>.

⁵⁷ Ben Garside, “Carbon Import Tariffs Could Torpedo Global Climate Deal- EU Official”, *Reuters* (10 July 2014), online: Reuters <<http://www.reuters.com/>> [Garside, “Carbon Import Tariffs”].

⁵⁸ Interviews of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015), Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015), an Eurometaux representative (20 June 2016), and a consultant (17 June 2016).

complexity of BCAs differs from sector to sector.⁵⁹ Therefore, BCAs are less administratively onerous, and thus may be practically feasible, in some sectors and for some products than in other sectors or for other products.

In fact, the European Commission recognized this by conceding in a report that BCAs may be feasible “for a limited number of standardised commodities, such as steel or cement.”⁶⁰ Furthermore, the work undertaken to establish greenhouse gas performance benchmarks for 52 industrial products for the third trading period of the EU ETS could be drawn on for the purpose of developing BCAs.⁶¹ The European Commission acknowledged this in one of its reports,⁶² thereby challenging its claims of prohibitive administrative complexity.

As a European Commission official indicated, the EU executive had actually been prepared to propose a BCA as part of its January 2008 proposal to revise the EU ETS,⁶³ which provides evidence that the EU executive considered it possible to overcome administrative complexity concerns: “We were ready to propose it, if it had not been for [a fear of hampering international climate efforts].”⁶⁴ Another European Commission official explicitly denied that practical concerns played a crucial role for the EU executive and asserted: “The technical follows the political will.”⁶⁵ The official also pointed to the fact that the US included BCAs in draft legislation for a federal cap-and-trade system, highlighting that administrative complexity concerns did not seem to have played a large role, if any, in those discussions.⁶⁶

⁵⁹ See section 2.3.2.1, above; also interviews of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015) and a think tank expert (28 October 2015).

⁶⁰ European Commission Communication, *supra* note 18 at 12.

⁶¹ See section 2.3.2.1, above.

⁶² European Commission Communication Background (Part II), *supra* note 31 at 72.

⁶³ See section 4.5.2, below.

⁶⁴ Interview of European Commission official B (27 October 2015). For details regarding fears of hampering international climate efforts, see section 4.5.2, below.

⁶⁵ Interview of European Commission official A (27 October 2015).

⁶⁶ *Ibid.*

French government officials also considered BCAs to be “technically feasible,”⁶⁷ and a representative of the environmental community held that BCAs could be implemented at least for certain commodities.⁶⁸ Similarly, a representative of cement industry association Cembureau held that implementing and administering BCAs may not be trivial but is feasible.⁶⁹ Another interviewee downplayed the significance of administrative complexity concerns: “Sure, [putting in place BCAs may be] difficult – but lots of things are difficult.”⁷⁰

Even industry stakeholders opposing BCAs acknowledged that BCAs would be practically feasible at least for certain products.⁷¹ A representative of chemicals industry association European Chemical Industry Council (CEFIC) conceded that “if there was political will, [the practical concerns] could be overcome, for some products.”⁷² Referring to fears about repercussions for international relations,⁷³ the interviewee added: “I think it is less a practical concern rather than a political worry that prevents politicians and policy-makers from [putting in place BCAs].”⁷⁴ Likewise, other interviewees confirmed that practical considerations ultimately did not explain the absence of BCAs for stationary installations in the EU ETS.⁷⁵ One interviewee lamented that claims of practical unfeasibility were not backed up by the evidence found in research: “Everybody criticizes [BCAs], but nobody reads the evidence. They all criticize it is too complicated. Actually, it is not. But that

⁶⁷ ENDS Europe, “French Push”, *supra* note 46.

⁶⁸ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

⁶⁹ Interview of Claude Loréa, Deputy Chief Executive & Director of Industrial Policy, Cembureau (28 October 2015).

⁷⁰ Interview of a think tank expert (28 October 2015).

⁷¹ Interviews of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015) and Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015).

⁷² Interview of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015).

⁷³ For more detail on these concerns, see part 4.5.1, below.

⁷⁴ Interview of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015).

⁷⁵ Interviews of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015), a think tank expert (28 October 2015), and Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

is the usual criticism.”⁷⁶ Another interviewee put it this way: “If you want [to put BCAs in place], you find a way; if you don’t – you find an excuse.”⁷⁷

In fact, similar to concerns about WTO law,⁷⁸ administrative complexity concerns might have been claimed by those who oppose BCAs for other reasons. By alleging these concerns to overstate the complexity of BCAs and cast doubt on the practical feasibility of these measures, opponents might use them as additional arguments against BCAs, despite the existence of solutions to overcome these difficulties. One interviewee explained that administrative complexity concerns are often “used as an excuse.”⁷⁹ Similarly, another interviewee called claims of practical unfeasibility “the kill-all argument.”⁸⁰ Equally skeptical, a government official stated that “many [opponents] claim administrative difficulty [concerns].”⁸¹

In summary, although the degree of complexity involved in implementing BCAs for basic industrial products is uncertain, the evidence suggests that administrative complexity concerns did not prevent the introduction of BCAs for stationary installations in the EU ETS. As recognized by both policy-makers and stakeholders, existing research offers pragmatic and creative solutions to address these concerns, thus enabling the implementation and administration of BCAs at least for certain products. However, administrative complexity concerns might be claimed by those who oppose BCAs for other reasons, despite evidence to the contrary. Nevertheless, the evidence indicates that concerns about the administrative complexity of BCAs do not explain the policy outcome.

⁷⁶ Interview of a think tank expert (28 October 2015).

⁷⁷ Interview of an anonymous source.

⁷⁸ See part 4.3, above.

⁷⁹ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

⁸⁰ Interview of a think tank expert (28 October 2015).

⁸¹ Interview of a government official (16 June 2016).

4.4.2 Effectiveness

This section examines whether concerns about the effectiveness of BCAs to achieve their potential benefits led to the absence of these measures for stationary installations in the EU ETS.

To a limited extent, policy-makers raised some concerns regarding the effectiveness of BCAs to achieve their potential benefits, such as safeguarding the competitiveness of domestic industries and countering carbon leakage.

The European Commission warned that BCAs “might only trigger incentives to cut emissions for production designated for exports to the EU,”⁸² which could be achieved simply by redirecting trade flows instead of reducing emissions.⁸³ A European Commission official also mentioned this “risk of loopholes” in an interview.⁸⁴ The EU executive further stated: “Effective [BCAs], which cannot be circumvented, would be difficult to design, implement and enforce. (...) It would be difficult to enforce [monitoring and reporting requirements] and therefore, to detect potential violations.”⁸⁵ Similarly, using China as an example, a Dutch government official cautioned that BCAs could be circumvented by redirecting trade flows, thus casting doubt on their effectiveness.⁸⁶

However, the small degree to which these concerns were raised suggests that they played no more than a minor role, if any, for policy-makers in considering BCAs for stationary installations. This could be because the discussions of BCAs did not advance far enough for these concerns to be explored further.

In conclusion, there is no evidence that concerns about the effectiveness of BCAs prevented the introduction of such measures for stationary installations in the EU ETS. As a result, these concerns cannot explain the policy outcome.

⁸² European Commission Communication Background (Part II), *supra* note 31 at 73.

⁸³ See section 2.3.2.2, above.

⁸⁴ Interview of European Commission official B (27 October 2015).

⁸⁵ European Commission Communication Background (Part II), *supra* note 31 at 72-73.

⁸⁶ Doug Palmer, “Dutch Official Warns Against Climate Trade War”, *Reuters* (25 March 2009), online: Reuters <<http://www.reuters.com/>>.

4.5 Concerns about Repercussions for International Relations

This part examines whether concerns about repercussions for international relations led to the absence of BCAs for stationary installations in the EU ETS. The discussion concentrates on fears of trade war and retaliation (section 4.5.1) and of hampering international climate efforts (section 4.5.2). As will be shown, fears of trade war and retaliation explain the absence of BCAs for stationary installations in the EU ETS. Policy-makers also showed concerns about hampering international climate efforts, albeit likely to a lesser degree compared to fears about trade war and retaliation.

4.5.1 Fear of Trade War and Retaliation

This section details the fierce international opposition, particularly from developing countries, against the EU in response to legislation that foresaw the possibility of introducing BCAs in the EU ETS (section 4.5.1.1). The discussion then considers the impact of this opposition on policy-makers and stakeholders in the EU (section 4.5.1.2).

4.5.1.1 Threats of Retaliation by Third Countries

In the run-up to the Copenhagen climate summit at the end of 2009, China and India voiced strong opposition to BCAs and threatened retaliation. At the time, the EU had passed legislation that foresaw the possibility of introducing BCAs in the EU ETS,⁸⁷ and the US included BCAs in draft legislation for a federal cap-and-trade system.⁸⁸ Chinese and Indian opposition, which intensified over time, came in response to the prospect of BCAs and signified the impact these policy developments had on developing countries.

In March 2009, China's chief climate official rejected a possible BCA to be introduced by the US, calling it "an excuse to practice protectionism on trade."⁸⁹ In April that year, India

⁸⁷ Article 10b of the *EU ETS Directive* (as amended in 2009), *supra* note 3.

⁸⁸ US, Bill HR 2454, *American Clean Energy and Security Act of 2009*, 111th Cong, 2009.

⁸⁹ Paul Eckert, "China Minister Rejects U.S. Pollution Duty Idea", *Reuters* (18 March 2009), online: Reuters <<http://www.reuters.com/>>.

echoed China's position and urged developed countries not to use BCAs, calling these measures "protectionism" and "simply not acceptable."⁹⁰ Later that month, a top Chinese government official warned the US that its proposed BCA "smells of protectionism and could spark retaliation from developing countries."⁹¹ In June, India's environment minister "lambasted" the US' proposed BCA, calling it a "pernicious" attempt to impose trade penalties on other countries.⁹² A month later, China and India "lashed out" at the possibility of developed countries introducing BCAs and warned that adopting such measures would "disrupt the order of international trade."⁹³

Intensifying its rhetoric in the dispute, China called BCAs "trade protectionism in the guise of environmental protection" and warned that such measures "could set off a global trade war."⁹⁴ In October, a Chinese government official stated that "retaliation would (...) be inevitable" and would lead to "a global trade war."⁹⁵ In December, only days before the Copenhagen climate summit commenced, an advisor to the Chinese government cautioned that BCAs were "likely to trigger a trade war and spark boycotts from developing countries."⁹⁶ Later that month during the Copenhagen climate summit, India's chief climate negotiator stated that the country is "totally against [BCAs] – totally against" and added that a trade war "is what we are doing our best to try to avoid."⁹⁷

⁹⁰ Gerard Wynn, "India Urges Rich Not to Use 'Green' Protectionism", *Reuters* (7 April 2009), online: Reuters <<http://www.reuters.com/>>.

⁹¹ Alan Rappeport, "Chinese Official Warns US on Protectionism", *Financial Times* (21 April 2009), online: Financial Times <<http://www.ft.com/>>.

⁹² Amy Kazmin, "India Lambasts 'Pernicious' US Carbon Tariffs", *Financial Times* (30 June 2009), online: Financial Times <<http://www.ft.com/>>.

⁹³ David Stanway & Kritivas Mukherjee, "U.S. Carbon Tariffs, Still Long Way Off, Draw Asia Ire", *Reuters* (3 July 2009), online: Reuters <<http://www.reuters.com/>>.

⁹⁴ Alan Beattie & Kathrin Hille, "China Joins Carbon Tax Protest", *Financial Times* (3 July 2009), online: Financial Times <<http://www.ft.com/>>.

⁹⁵ David Stanway & Wang Lan, "Carbon Tariff Proposals Unworkable: China WTO Rep", *Reuters* (29 October 2009), online: Reuters <<http://www.reuters.com/>>.

⁹⁶ Chris Buckley, "China Denounces Carbon Tariff Idea Ahead of Copenhagen", *Reuters* (4 December 2009), online: Reuters <<http://www.reuters.com/>>.

⁹⁷ James Kanter, "At Climate Talks, Trade Pressures Mount", *The New York Times* (17 December 2009), online: The New York Times <<http://www.nytimes.com/>>.

In addition to opposing BCAs for stationary installations in the EU ETS, third countries also opposed the inclusion of international flights in the EU ETS.⁹⁸ This opposition from third countries consisted of a wide range of threats and retaliatory measures that included limitations for EU carriers' operations in foreign airspace, third country legislation to prevent non-EU airlines from complying with the EU ETS, and the stalling of orders worth billions of dollars from European aircraft manufacturer Airbus. Third countries that threatened and enacted retaliation against the EU in this context included the US, China, India, Russia, and others.

4.5.1.2 Impact of Third Country Opposition

In line with this fierce international opposition to BCAs in the EU ETS, particularly from developing countries, all interviewees in this case study cited a fear of trade war and retaliation when explaining the absence of BCAs for stationary installations in the EU ETS. This includes policy-makers in the European Commission and EU Member State governments, as well as stakeholders in industry and NGOs.

The European Commission repeatedly voiced concerns about possible trade war resulting from a BCA. In February 2008, EU Commissioner for Trade Peter Mandelson opposed a BCA, indicating that such a measure “might trigger retaliation against European exporters.”⁹⁹ He reiterated this concern in September of that year when he warned that BCAs could “invite retaliation and provoke a negative spiral of protectionism.”¹⁰⁰ In September 2009, European Commission President José Manuel Barroso reacted to one of French Prime Minister Nicolas Sarkozy's calls for BCAs, declaring that “as the world's biggest exporter by far, it [is] not in Europe's interest to erect protectionist walls.”¹⁰¹ In February 2010, incoming EU Commissioner for Trade Karel de Gucht rejected BCAs, indicating that they would risk

⁹⁸ See section 3.6.1, above.

⁹⁹ Tony Barber, “EU Ministers Wary of Carbon Tariffs”, *Financial Times* (12 February 2008), online: Financial Times <<http://www.ft.com/>>.

¹⁰⁰ Mandelson Speech 2008, *supra* note 45.

¹⁰¹ “Sarkozy Renews Pressure for CO2 Border Tax”, *EurActiv* (14 September 2009), online: EurActiv <<http://www.euractiv.com/>> [EurActiv, “Sarkozy”].

“sliding into a trade war,”¹⁰² and EU Commissioner for Climate Action Connie Hedegaard shared that concern.¹⁰³

In an April 2010 report, the European Commission warned that BCAs “could lead to trade conflicts and possible retaliatory measures.”¹⁰⁴ In the following month, the EU executive noted the EU’s “overall interest in an open trade system,” highlighted that “a number of emerging economies have already signalled their concerns related to [BCAs],”¹⁰⁵ and added that BCAs could “trigger retaliatory measures” and thus “risk hostile reactions.”¹⁰⁶ In January 2015, the Director-General of the European Commission’s climate department Jos Delbeke ruled out BCAs “for fear of an international backlash,”¹⁰⁷ and a policy document of that department notes the “risk of retaliation and trade conflicts with third countries.”¹⁰⁸ Several European Commission officials confirmed that fears of trade war and retaliation were a major concern for the EU executive.¹⁰⁹ Another interviewee described the EU executive’s sentiment as follows: “Trade war or retaliation that targets Europe’s vulnerable industries is something about which policy-makers are quite sensitive.”¹¹⁰

Most EU Member State governments shared the European Commission’s concerns about trade wars and retaliation. A government official confirmed the fear of trade war, especially in export-oriented countries, such as Germany.¹¹¹ A consultant also reported that many EU Member State officials were worried about retaliation from third countries.¹¹² In

¹⁰² EU, *Press Release of the European Parliament of 12 January 2010 “Summary Hearing of Karel de Gucht - Trade”*.

¹⁰³ Frédéric Simon, “French to Revive Sarkozy’s EU Carbon Tariff Idea”, *EurActiv* (18 May 2012), online: EurActiv <<http://www.euractiv.com/>>.

¹⁰⁴ European Commission on Innovative Financing, *supra* note 28 at 34.

¹⁰⁵ European Commission Communication, *supra* note 18 at 12.

¹⁰⁶ European Commission Communication Background (Part II), *supra* note 31 at 72.

¹⁰⁷ Susanna Williams, “EC Rules Out Border Taxes Against Carbon Leakage”, *ENDS Europe* (8 January 2015), online: ENDS Europe <<http://www.ends europe.com/>>.

¹⁰⁸ Impact Assessment of 2015 Proposal to Revise the EU ETS, *supra* note 33 at 139, n 176.

¹⁰⁹ Interviews of European Commission official B (27 October 2015), European Commission official A (27 October 2015), and European Commission official C (27 October 2015).

¹¹⁰ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

¹¹¹ Interview of a government official (16 June 2016).

¹¹² Interview of a consultant (17 June 2016).

March 2009, Dutch Minister for Foreign Trade Frank Heemskerk called the imposition of BCAs “a recipe for a trade war,” warning that “rich countries cannot afford to start a trade war with China and other developing countries that they believe are not doing enough to fight global warming.”¹¹³

Besides policy-makers, industry stakeholders and NGO representatives also voiced concerns about trade war and retaliation. The European Commission indicated that opponents of BCAs view these measures as “risk[ing] retaliatory action by countries outside the EU.”¹¹⁴ For instance, in June 2008, umbrella association BusinessEurope indicated that BCAs bear the “risk of retaliation.”¹¹⁵ A BusinessEurope leader elaborated in November 2009:

[T]he introduction of [BCAs] could lead to a destructive trade war (...) with huge and damaging consequences for European business, since the target countries would most likely be the EU’s biggest export destinations – the US, Russia or China. As the world’s largest export economy, the EU would take a huge risk in attacking its biggest trading partners. (...) What would prevent China or India from pursuing such a policy, if the EU opened the Pandora box of climate change protectionism?¹¹⁶

BusinessEurope’s fear of trade war is also reflected in a letter director-general Philippe de Buck sent to European Commission President José Manuel Barroso concerning a draft EU policy to implement a low carbon fuel standard that would cover also imports of fuels: “[W]e do not want to encourage other [countries] to adopt similar trade distorting measures against our exporters. The proposal is a significant risk for EU exporters as our trading partners could adopt similar import restrictions for energy-intensive manufactured products for which the EU is a leading exporter.”¹¹⁷ Similarly, an executive of oil and gas company BP warned in a speech in January 2010 that the introduction of BCAs “would be a considerable mistake” that would “invite retaliation,” and he added: “As a region very largely dependent on trade

¹¹³ Palmer, *supra* note 86.

¹¹⁴ European Commission Communication Background (Part II), *supra* note 31 at 76.

¹¹⁵ BusinessEurope on Carbon Leakage, *supra* note 43.

¹¹⁶ Quick & Neuhoff, *supra* note 55.

¹¹⁷ BusinessEurope, Letter from Director-General Philippe de Buck to European Commission President José Manuel Barroso (15 November 2011).

for its fundamental welfare, this is not a good place for Europe to go.”¹¹⁸ Other industry stakeholders expressed similar views, including steel industry association Eurofer,¹¹⁹ petroleum refining industry association FuelsEurope,¹²⁰ non-ferrous metals industry association Eurometaux,¹²¹ and the umbrella association of German industries.¹²² Throughout the interviews for this research, there was a sense that also cement industry association Cembureau, which supported BCAs, acknowledged that the fear of retaliation prevented the adoption of these measures in the EU ETS.

Policy-makers’ and stakeholders’ attitudes towards BCAs were also shaped by the EU’s experience with threats and retaliatory measures in policy areas outside the context of stationary installations in the EU ETS. In particular, several European Commission officials and other interviewees noted that the EU’s experience with the inclusion of international flights in the EU ETS reinforced policy-makers’ and stakeholders’ negative attitudes towards BCAs for stationary installations in the EU ETS.¹²³ A European Commission official asserted: “The aviation debacle made it more obvious to people that the risk of retaliation [is real]. (...) You may have a very good technical case, but if big powers pick it up as a big

¹¹⁸ Conn, *supra* note 56.

¹¹⁹ In May 2015, Eurofer stated: “Europe is (...) exporting steel products [that] could then be targeted [in response to a BCA]”; see Ben Garside, “EU Nation Envoys Suggest Use of Carbon Import Tariffs for Some Sectors”, *Carbon Pulse* (20 May 2015), online: Carbon Pulse <<http://carbon-pulse.com/>> [Garside, “EU Nation Envoys”].

¹²⁰ In July 2014, FuelsEurope cautioned that BCAs “[pose] a risk that other countries could deploy retaliatory trade measures”; see Garside, “Carbon Import Tariffs”, *supra* note 57.

¹²¹ In April 2010, Eurometaux stated that BCAs “would risk serious international trade conflicts”; Eurometaux, “Public Consultation in Preparation of an Analytical Report on the Impact of the International Climate Negotiations on the Situation of Energy Intensive Sectors” (April 2010), online: European Commission <<http://ec.europa.eu/>> (retrieved 14 September 2015) at 1 [Eurometaux Public Consultation]; also interview of an Eurometaux representative (20 June 2016).

¹²² In April 2010, the umbrella association of German industries warned that BCAs “will provoke retaliatory measures to the detriment of German and EU business”; Bundesverband der Deutschen Industrie, “European Commission Public Consultation in Preparation of an Analytical Report on the Impact of the International Climate Negotiations on the Situation of Energy Intensive Sectors (ETSD, Carbon Leakage Decision)” (8 April 2010), online: European Commission <<http://ec.europa.eu/>> (retrieved 13 August 2015) at 3.

¹²³ Interviews of European Commission official B (27 October 2015), European Commission official A (27 October 2015), European Commission official C (27 October 2015), a government official (16 June 2016), an Eurometaux representative (20 June 2016), Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015), and Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

political issue, then even the EU, which is also a big power, is [in a difficult situation].”¹²⁴ Another European Commission official stated that the aviation experience “poisoned the well of [BCAs]” and “shows what brute political force can do.”¹²⁵

Similarly, a government official noted that the experience with aviation “has not exactly grown [policy-makers’] appetite for [BCAs] in the stationary ETS,”¹²⁶ and the representative of an industry association observed that the fear of trade war became more tangible following that experience and “cooled a lot the debate” on BCAs for stationary installations.¹²⁷ In the same vein, another interviewee offered: “I think the whole aviation debate put the air out of [the discussion of] BCAs [for stationary installations]. We now know there is no political will whatsoever to go there. There is no stomach for it. [The EU’s reaction in the aviation case] showed that there is no political will in Europe to push this further. There is no resilience.”¹²⁸

Further illustrating concerns about trade war and retaliation, a European Commission official recalled a threat by China of June 2013. Back then, China threatened to impose retaliatory levies on wine imported from the EU in response to EU anti-dumping tariffs on Chinese solar panels, which jeopardized French wine exports worth over EUR 500m.¹²⁹ The European Commission official elaborated:

[I remember] when the Chinese dropped a little press article saying: “OK, and by the way, we are considering import tariffs on wine from France.” And we know how it works in China – although they are maybe becoming a little bit more transparent, they could slam any [retaliatory measure on us], without much reasoning, justification, or consultation. They could just say: “OK, as of today, this or that tariff applies.” I think it is still a very real possibility.¹³⁰

¹²⁴ Interview of European Commission official B (27 October 2015).

¹²⁵ Interview of European Commission official A (27 October 2015).

¹²⁶ Interview of a government official (16 June 2016).

¹²⁷ Interview of an Eurometaux representative (20 June 2016).

¹²⁸ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

¹²⁹ Bruno Waterfield, “France Demands Emergency EU Summit Over China’s Wine Tax Threat”, *The Telegraph* (5 June 2013), online: The Telegraph <<http://www.telegraph.co.uk/>>.

¹³⁰ Interview of European Commission official B (27 October 2015).

As a further example of retaliation by third countries, several interviewees referred to Russia's reaction to EU sanctions in response to the country's annexation of Crimea in 2014.¹³¹ In this instance, Russia retaliated by banning a wide range of foodstuffs imported from the EU, which impacted food imports worth close to EUR 12bn.¹³² The fear of a trade war in this case appears to have prompted steel company ArcelorMittal to oppose EU sanctions against Russia, with the company stating: "We have not seen cases where sanctions bring us forward. There is a risk they can snowball and a risk that the other side will fire back."¹³³ Referring to this episode, an industry representative noted: "All of a sudden we saw a steel company [opposing sanctions on Russia] saying: 'Actually, this is not a good idea.' Because they [have] operations also in Russia and their business is being affected."¹³⁴

Having recounted the EU's experience with the inclusion of international flights in the EU ETS, China's threat to impose retaliatory levies on wine imported from the EU, and Russia's reaction to EU sanctions in response to the annexation of Crimea, a European Commission official asked rhetorically: "How many more examples of retaliation do you need?"¹³⁵

Several interviewees expressed concern that third country retaliation may target seemingly unrelated EU sectors.¹³⁶ A representative of chemicals industry association CEFIC explained:

¹³¹ Interviews of European Commission official B (27 October 2015), Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015), Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015), and Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

¹³² "Russia Hits West With Food Import Ban in Sanctions Row", *BBC* (7 August 2014), online: BBC <<http://www.bbc.com/>>.

¹³³ Maytaal Angel & Philip Blenkinsop, "ArcelorMittal Opposes Western Sanctions Against Russia", *Reuters* (16 May 2014), online: Reuters <<http://www.reuters.com/>>.

¹³⁴ Interview of Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015).

¹³⁵ Interview of European Commission official B (27 October 2015).

¹³⁶ Interviews of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015), Claude Loréa, Deputy Chief Executive & Director of Industrial Policy, Cembureau (28 October 2015), Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third

We fear that there will be retaliation measures by other countries. Because [a BCA would] make their products more costly and less competitive. And they will do the same or similar things to our exported goods, in maybe other areas, maybe [even un]related to their carbon footprint [but instead] related to any [seemingly random] parameter. So we fear retaliation. This could be the start of a trade war, which is the last thing we need.¹³⁷

Likewise, a representative of pulp and paper industry association Confederation of European Paper Industries (CEPI) showed concern that BCAs, even if introduced for other sectors, may lead to retaliation from third countries that could target EU exports of pulp and paper, giving rise to fear that the sector could become “collateral damage in a trade war.”¹³⁸ Similarly, a representative of the environmental community pointed out that “the crime may be over here, but the victim may be someone completely different.”¹³⁹ Going beyond retaliatory measures that target EU exports, an industry representative also pointed to potential political pressure that companies with operations in third countries could face from host governments:

There are companies that are global players. That could be in any sector. And they will also have installations in countries like China. When you start talking about [BCAs], immediately you see pressure from the Chinese government or any other foreign government on companies that are operating in those countries, saying: “You either stop this nonsense or [we make] you stop operating here.” And this is of course creating difficulties for companies to take strong positions [on BCAs] because they might be kicked out of the country in which they are operating.¹⁴⁰

Several interviewees underlined the uncertainty of the likelihood and extent of retaliatory measures by third countries. A European Commission official noted that Chinese retaliation could be “random – they would just do whatever, so you [would not] necessarily

Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015), and European Commission official B (27 October 2015).

¹³⁷ Interview of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015).

¹³⁸ Interview of Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015).

¹³⁹ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

¹⁴⁰ Interview of Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015).

[be able to] predict the implications.”¹⁴¹ An industry representative also highlighted the uncertainty of the potential ramifications of third country retaliation:

[BCA] is a request by few that do not have the entire economy and the entire trade picture in mind. They only look at their own, narrow perspective. And they disregard potential unintended side effects. This is always dangerous and risky, and so far policy-makers were well advised to look at the bigger picture and avoid trade distortions and political frictions.¹⁴²

The uncertainty and unpredictability of third countries’ reactions to BCAs emphasized policy-makers’ and stakeholders’ fears of trade war and retaliation. One interviewee expressed that “retaliation is something that really scares people.”¹⁴³ Another interviewee stated: “The term ‘trade war’ is something that has some unknown element. You just do not know how far this will go, how big this may become, how long it may take. I think this is a term that is quite frightening. I think it has some frightening element.”¹⁴⁴ Illustrating the unpredictability of third country retaliation and its consequences, an interviewee relayed: “When I speak to supporters of BCAs and ask ‘Can you model the indirect consequences of retaliation measures?’ – then there is stunned silence.”¹⁴⁵

In summary, both policy-makers and stakeholders cited the fear of trade war and retaliation when explaining the absence of BCAs for stationary installations in the EU ETS. Third countries, particularly developing countries, threatened retaliation against the EU in response to EU legislation that foresaw the possibility of introducing BCAs in the EU ETS. Policy-makers’ and stakeholders’ attitudes towards BCAs were also shaped by the EU’s experience with threats and retaliatory measures from third countries outside the context of

¹⁴¹ Interview of European Commission official B (27 October 2015).

¹⁴² Interview of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015).

¹⁴³ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

¹⁴⁴ Interview of a consultant (17 June 2016).

¹⁴⁵ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

stationary installations in the EU ETS. As a result, the evidence shows that concerns about trade war and retaliation from third countries explain the policy outcome.

4.5.2 Fear of Hampering International Climate Efforts

This section examines whether a fear of hampering international climate efforts led to the absence of BCAs for stationary installations in the EU ETS. Although such a fear was likely not as important compared to fears about trade war and retaliation, there is evidence that policy-makers showed some level of concern about possibly hampering international climate efforts.

For instance, interviews with European Commission officials¹⁴⁶ revealed that the provision that was introduced in the 2009 revision of the EU ETS, which mandated the European Commission to consider the introduction of BCAs on imports, was in fact the remnant of a fully elaborated BCA¹⁴⁷ that the EU executive ultimately held back due to a fear of hampering international climate efforts.

Despite its otherwise consistent negative stance on BCAs,¹⁴⁸ the European Commission had intended to include such a measure in its January 2008 proposal to revise the EU ETS. This singular pursuit of a BCA can be traced back to the personal interest and expertise of a key European Commission official, namely Mogens Peter Carl, who was the Director-General of the European Commission's environment department at the time.¹⁴⁹ Prior to this appointment, Carl had been the Director-General of the European Commission's trade department, and he came to the environment department with long-standing expertise in

¹⁴⁶ Interviews of European Commission official B (27 October 2015) and European Commission official A (27 October 2015).

¹⁴⁷ For details on this draft BCA, which was dubbed "Future Allowance Import Requirement" (FAIR), see Reinhard Quick, "'Border Tax Adjustment' in the Context of Emission Trading: Climate Protection or 'Naked' Protectionism?" (2008) 3:5 *Global Trade and Customs Journal* 163 at 167-168; also Reinhard Quick, "The Debate Continues: Are Border Adjustments of Emission Trading Schemes a Means to Protect the Climate or Are They 'Naked' Protectionism?" in Inge Govaere, Reinhard Quick & Marco Bronckers, eds, *Trade and Competition Law in the EU and Beyond* (Cheltenham: Edward Elgar, 2011) at 122-123; Kateryna Holzer, *Carbon-Related Border Adjustment and WTO Law* (Cheltenham: Edward Elgar, 2014) at 231.

¹⁴⁸ See section 4.5.1.2, above.

¹⁴⁹ Back then, climate policy was housed in the European Commission's environment department.

trade matters. A European Commission official explained: “He had a particular interest in the trade dimension of climate policy and was keen to elaborate [a BCA].”¹⁵⁰ Carl was convinced that a BCA could be designed to be WTO-compliant, and he tasked officials in the European Commission’s environment department with elaborating such a measure.

When the European Commission’s draft proposal leaked,¹⁵¹ however, it triggered “ferocious”¹⁵² reactions by third countries at the international climate negotiations in Bali, Indonesia in December 2007. In fact, it was EU Commissioner for the Environment Stavros Dimas’ decision to discard the BCA from the proposal following his personal experience of attending the negotiations in Bali. Up until that point, Dimas had been supportive of Carl’s push for a BCA, not calling into question his Director-General’s firmly held view on the matter. However, Dimas changed his mind when he experienced the “backlash” at Bali first-hand, where he was “personally attacked” for the BCA contained in the leaked draft proposal.¹⁵³

European Commission officials realized that the leaked draft proposal had a negative impact on the negotiations, having observed “distrust [from] the whole developing countries front” and a “souring” of the negotiations.¹⁵⁴ While Carl insisted on proposing the BCA even after Bali, Dimas ultimately decided against, concluding that a BCA would not help “EU leadership [on climate policy] and to convince [third countries to] also take [climate] action.”¹⁵⁵ As a result, the Bali reactions caused the European Commission not to propose the BCA after all.¹⁵⁶ Instead, the EU executive opted to include a provision to consider the introduction of a BCA at a later time.¹⁵⁷ Although at that point the European Commission

¹⁵⁰ Interview of European Commission official B (27 October 2015).

¹⁵¹ Also Harro van Asselt & Thomas Brewer, “Addressing Competitiveness and Leakage Concerns in Climate Policy: An Analysis of Border Adjustment Measures in the US and the EU” (2010) 38:1 Energy Policy 42 at 48.

¹⁵² Interview of European Commission official B (27 October 2015).

¹⁵³ *Ibid.*

¹⁵⁴ *Ibid.*

¹⁵⁵ *Ibid.*

¹⁵⁶ Interestingly, half a year after the European Commission’s January 2008 proposal, Carl, a Dane married to a French, was seconded to the French EU Presidency and continued to campaign for BCAs in that position; *ibid.*

¹⁵⁷ See also van Asselt & Brewer, *supra* note 151 at 48, who note: “The fact that the provision was replaced by a mere mentioning of the option is a clear indication of the sensitivity of the issue.”

had abandoned any intention of introducing a BCA, formally leaving the door open to consider such a measure later on was a favour to France, which was a strong proponent of BCAs.¹⁵⁸ Indeed, when confronted by third countries about that “leftover” provision at subsequent international climate negotiating sessions, the European Commission “hastily emphasized” that it actually had no intention to introduce a BCA.¹⁵⁹ As expected, the European Commission subsequently formally rejected the introduction of a BCA.¹⁶⁰

In addition to this particular episode, throughout the years, European Commission officials repeatedly indicated their concern that BCAs could hamper international climate efforts. For instance, EU Commissioner for Trade Peter Mandelson highlighted this concern in several speeches between 2006 and 2008:

[A BCA] would not be good politics. (...) Above all, dealing with climate change is an international challenge. It requires international cooperation. Coercive policies will harm this. Collective responsibility will only be fostered by policies in dialogue, incentive and cooperation.¹⁶¹

[A BCA] gets the international politics of climate change wrong. The climate crisis requires that we build international consensus for radical change, [t]hat we build a global coalition. It's ultimately more productive to encourage clean trade than to try and punish dirty trade. We will never bully the nonsignatories to Kyoto into being virtuous – it is counterproductive to try.¹⁶²

[R]ight now we should be focusing on building a global coalition for a new global climate treaty. Tough talk on a [BCA] will only alienate the very partners we need to get on board.¹⁶³

Moreover, in the run-up to and at the 2009 Copenhagen summit, BCAs were a divisive issue that particularly developing countries opposed and which negatively impacted the atmosphere at the international climate negotiations. In April 2009, on the sidelines of the

¹⁵⁸ Interview of European Commission official B (27 October 2015); also interviews of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015) and a consultant (17 June 2016).

¹⁵⁹ Interview of European Commission official B (27 October 2015).

¹⁶⁰ European Commission Communication, *supra* note 18 at 10-12.

¹⁶¹ Mandelson Speech 2006, *supra* note 45 at 6.

¹⁶² EU, *Speech 07/73 of EU Trade Commissioner Peter Mandelson of 9 February 2007 “Energy Security and Climate Change: What Role for Trade Policy?”* at 6.

¹⁶³ Mandelson Speech 2008, *supra* note 45.

negotiations in Bonn, Germany, India “urged rich nations against applying [BCAs],” adding that “the onus for [climate] action [is] on developed nations.”¹⁶⁴ In July that year, BCAs were reported to have become “a growing concern” for the negotiations,¹⁶⁵ and China communicated that “[BCAs] will not help any country’s endeavours during the climate change negotiations”¹⁶⁶ and “severely [harm] developing countries’ interests.”¹⁶⁷ Later that month, the Swedish EU Presidency “warned that [the threat of BCAs] would block progress towards a global deal, which (...) was already too slow” and added that “[BCAs] would seriously make negotiations more difficult.”¹⁶⁸

According to the EU’s top climate negotiator, “[s]everal developing countries expressed concern about [BCAs]” at an international climate negotiations meeting in Bangkok, Thailand in September of the same year.¹⁶⁹ In November, Ángel Gurría, Secretary-General of the Organisation for Economic Co-operation and Development, wrote that “arguments over [BCAs] could make an [international climate] agreement even more difficult to negotiate,”¹⁷⁰ and even academic Karsten Neuhoff of German economic research institute DIW Berlin, a proponent of BCAs, conceded that they “risk undermining international cooperation on climate policy.”¹⁷¹ At the Copenhagen climate summit in December 2009, BCAs were a contentious issue between developed and developing countries.¹⁷² In January 2010, following the failed Copenhagen climate summit, the European Commission maintained that BCAs “could jeopardize any agreement” in future international climate negotiations.¹⁷³

¹⁶⁴ Wynn, *supra* note 90.

¹⁶⁵ Stanway & Mukherjee, *supra* note 93.

¹⁶⁶ David Stanway, “China Says ‘Carbon Tariffs’ Proposals Breach WTO Rules”, *Reuters* (2 July 2009), online: Reuters <<http://www.reuters.com/>>.

¹⁶⁷ Beattie & Hille, *supra* note 94.

¹⁶⁸ “Carbon Tariffs Falling Out of Favour as Trade War Looms”, *EurActiv* (28 July 2009), online: EurActiv <<http://www.euractiv.com/>> [EurActiv, “Trade War Looms”].

¹⁶⁹ Joshua Chaffin & Fiona Harvey, “EU Attacks Carbon Border Tax Initiative”, *Financial Times* (15 October 2009), online: Financial Times <<http://www.ft.com/>>.

¹⁷⁰ Angel Gurría, “Carbon Has No Place in Global Trade Rules”, *Financial Times* (4 November 2009), online: Financial Times <<http://www.ft.com/>>.

¹⁷¹ Quick & Neuhoff, *supra* note 55.

¹⁷² See Kanter, *supra* note 97.

¹⁷³ “Carbon Tariffs Resurface in Copenhagen Aftermath”, *EurActiv* (8 January 2010), online: EurActiv <<http://www.euractiv.com/>>.

Furthermore, in the run-up to the 2015 Paris climate summit, the Director-General of the European Commission's climate department Jos Delbeke dismissed the idea of raising BCAs in the international climate negotiations: "If we were to put a border tax on the table before Paris, it's the recipe that could torpedo that process."¹⁷⁴ A few months later, he reiterated that position by stating that BCAs "could undermine [the EU's] position at the [United Nations] climate talks."¹⁷⁵ Likewise, another European Commission official emphasized that "the EU [was] pushing for an ambitious climate change agreement in Paris, and [a BCA] would not [have helped] that process," adding that "the introduction of a BCA would [prevent building] a constructive atmosphere that is needed to help [attain a] global agreement."¹⁷⁶ Representatives of the environmental community concurred, calling BCAs "a very destructive conversation" that risks shutting down any dialogue between nations,¹⁷⁷ and which may therefore "throw some unwanted spanners in the works of the international climate negotiations."¹⁷⁸

To summarize, EU policy-makers showed concerns throughout the years that BCAs for stationary installations in the EU ETS could hamper international climate efforts. Particularly opposed by developing countries, BCAs have been a divisive issue that negatively impacted the atmosphere at the international climate negotiations. In fact, the European Commission had intended to table a BCA at one point in time, but ultimately backtracked on the matter due to a fear of hampering international climate efforts. As a result, the evidence shows that these concerns explain the policy outcome, albeit likely to a lesser degree compared to fears about trade war and retaliation.

¹⁷⁴ Garside, "Carbon Import Tariffs", *supra* note 57.

¹⁷⁵ Williams, *supra* note 107.

¹⁷⁶ Interview of European Commission official C (27 October 2015).

¹⁷⁷ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

¹⁷⁸ Interview of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

4.6 Alternative Measures

This part examines whether policy-makers or stakeholders preferred alternative measures to pursue the potential benefits of BCAs and whether any such preference led to the absence of BCAs for stationary installations in the EU ETS. As will be seen, a preference for free allocation among industry stakeholders and, as a consequence, policy-makers explains the policy outcome.

While BCAs for stationary installations in the EU ETS have never been debated with great vigour among EU policy-makers and stakeholders, the context in which any such deliberations took place revolved around the containment of compliance costs for industry. Although the European Commission mentioned BCAs' potential benefit of incentivizing third countries to take climate action¹⁷⁹ in some of its policy documents in passing, it focused its discussions of BCAs on addressing competitiveness concerns in the context of the risk of carbon leakage.¹⁸⁰ Likewise, none of the interviewees in this case study cited BCAs' potential to incentivize third countries as a motivation for these measures. Therefore, policy-makers' and stakeholders' rationale for BCAs for stationary installations in the EU ETS was to address competitiveness concerns.¹⁸¹

Alternative measures to address competitiveness concerns that are in place in the EU ETS include free allocation and state aid, with the latter intended to mitigate increased costs from the purchase of electricity that includes the carbon price.¹⁸² According to the European Commission, most stakeholders considered that particularly free allocation should remain the main tool to address competitiveness concerns.¹⁸³ Umbrella association BusinessEurope repeatedly advocated for the continued use of free allocation,¹⁸⁴ and also the Alliance for a

¹⁷⁹ For details on this potential benefit, see section 2.2.4, above.

¹⁸⁰ See e.g. European Commission Communication Background (Part II), *supra* note 31 at 70-73; Impact Assessment of 2008 Proposal to Revise the EU ETS, *supra* note 26 at 118-119.

¹⁸¹ This is in contrast to the inclusion of international flights in the EU ETS, where policy-makers sought to reduce emissions from these flights by covering them under the EU ETS; see chapter 3.

¹⁸² Articles 10a and 10a(6) of the *EU ETS Directive* (as amended in 2009), *supra* note 3.

¹⁸³ European Commission Communication Background (Part II), *supra* note 31 at 76.

¹⁸⁴ E.g. "EU Emission Trade Allowances 'Must Remain Free'", *ENDS Europe* (27 November 2007), online: *ENDS Europe* <<http://www.endseurope.com/>>; BusinessEurope on Carbon Leakage, *supra* note 43 at 2;

Competitive European Industry, which is composed of associations of energy-intensive industries and BusinessEurope, called for the continued use of free allocation.¹⁸⁵ Steel industry association Eurofer championed free allocation as well.¹⁸⁶

As a consequence, the European Commission and the vast majority of EU Member States also preferred free allocation to BCAs.¹⁸⁷ When asked about BCAs in May 2010, a spokesperson of European Commission President José Manuel Barroso indicated that “[t]he EU has already addressed [carbon leakage] through free allocation.”¹⁸⁸ Later that month, the European Commission rejected the introduction of BCAs and recommended the continued use of free allocation, calling it “the most obvious way” to address competitiveness concerns.¹⁸⁹ In October 2014, the EU heads of state declared that “free allocation will not expire,”¹⁹⁰ and in March 2015 the European Commission noted that it views free allocation as “the best way of avoiding carbon leakage and the related competitiveness issues.”¹⁹¹ Consequently, in its July 2015 proposal to revise the EU ETS, the European Commission retained the use of free allocation, noting that “free allocation is the EU’s chosen means to address carbon leakage.”¹⁹² European Commission officials also indicated this preference for free allocation in interviews.¹⁹³

Two European Commission officials reported that BCAs might have been introduced if no alternative measures had been available, which indicates that their availability prevented the introduction of BCAs for stationary installations in the EU ETS:

BusinessEurope, Letter from Director-General Philippe de Buck to EU Commissioner for the Environment Stavros Dimas (6 April 2009); ENDS Europe, “French Push”, *supra* note 46.

¹⁸⁵ Alliance for a Competitive European Industry, Letter from Chairpersons to the Presidents of the European Council, European Commission, and European Parliament (21 January 2010).

¹⁸⁶ E.g. Eurofer, “Analysis on Communication on Moving Beyond 20 Percent” (9 June 2010), online: Eurofer <<http://www.eurofer.org/>> [Eurofer, “Analysis”].

¹⁸⁷ EurActiv, “Trade War Looms”, *supra* note 168.

¹⁸⁸ ENDS Europe, “French Push”, *supra* note 46.

¹⁸⁹ European Commission Communication, *supra* note 18 at 10-12.

¹⁹⁰ European Council, *supra* note 13 at point 2.4.

¹⁹¹ European Commission Response, *supra* note 32.

¹⁹² Impact Assessment of 2015 Proposal to Revise the EU ETS, *supra* note 33 at 139, n 176.

¹⁹³ Interviews of European Commission official B (27 October 2015) and European Commission official A (27 October 2015).

You have other options, [namely] free allocation. Maybe if we had zero other options... who knows! We might have done something [on BCAs].¹⁹⁴

[BCA] is clearly not the only measure [available]. If it were the only measure [available], then maybe it would be worth [risking repercussions for international relations]. But it is not worth taking that risk because there are other measures available so we [prefer those]. (...) [Only] if nothing else works [to address competitiveness concerns], if nothing else works [that is] simpler or less dangerous, then [BCA] is an option.¹⁹⁵

Similarly, making the link between existing alternative measures and BCAs even more explicit, another interviewee stated:

One of the reasons that [BCAs have] not been applied is the fact that we have alternative measures in place already. We have free allocation for companies, and some of them get [state aid to soften the impact from] higher electricity prices. So we have those alternatives in place. And that is one of the reasons why [BCAs are] not that high on the agenda.¹⁹⁶

Industry stakeholders sought BCAs only as long as they came in addition to free allocation. For instance, when steel industry association Eurofer supported BCAs, they explicitly called for them to be investigated as complimentary measures in addition to free allocation.¹⁹⁷ In fact, no stakeholder was identified that was willing to exchange free allocation for BCAs. One interviewee noted that some industry stakeholders “started to realize that [they] had to trade one [measure] against the other.”¹⁹⁸ This realization led even the strongest proponents of BCAs to discontinue their support for these measures due to a preference for free allocation. For instance, not willing to forego free allocation in exchange for a BCA on imports of cement, the cement industry association Cembureau stated: “[A]t no point in time has Cembureau defended [a BCA on imports of cement] that includes a

¹⁹⁴ Interview of European Commission official B (27 October 2015).

¹⁹⁵ Interview of European Commission official C (27 October 2015).

¹⁹⁶ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

¹⁹⁷ Eurofer, “Climate Change: Eurofer Position on Sectoral Agreements and Sectoral Approaches” (31 July 2009), online: Eurofer <<http://www.eurofer.org/>>; Eurofer, “Climate Change: Expectations of the European Steel Industry on the Results of the Copenhagen Climate Change Negotiations” (26 November 2009), online: Eurofer <<http://www.eurofer.org/>>; Eurofer, “Analysis”, *supra* note 186.

¹⁹⁸ Interview of a think tank expert (28 October 2015).

consequential loss of free allowances.”¹⁹⁹ At other times, industry proponents of BCAs were “not very explicit on the interaction [of these measures] with free allocation,” which equally suggested that they sought BCAs in addition to free allocation.²⁰⁰

By contrast, for policy-makers, the environmental community, and academics, an introduction of BCAs would have implied a move to full auctioning and thus no free allocation, and vice versa. The European Commission considered free allocation to be inconsistent with BCAs and saw these measures as an alternative that would be applied instead of, and not in addition to, free allocation.²⁰¹ Viewing BCAs and free allocation as mutually exclusive alternatives, a European Commission official noted that introducing BCAs “would have been a big change of approach.”²⁰² In the European Parliament, the Greens highlighted that “only one compensation measure should be applied per sector.”²⁰³ Similarly, think tank Climate Strategies repeatedly indicated that it considered the two measures to be mutually exclusive,²⁰⁴ as did several interviewees from the environmental community and academia.²⁰⁵

¹⁹⁹ Cembureau, “Comment: Why the EU Cement Industry Opposes an Import Inclusion Scheme”, *Carbon Pulse* (7 February 2017), online: Carbon Pulse <<http://carbon-pulse.com/>> [Cembureau, “Comment”]; see also Bruno Vanderborght, “Comment: Why Is the EU Cement Sector Resisting a CO2 Border Measure?”, *Carbon Pulse* (31 January 2017), online: Carbon Pulse <<http://carbon-pulse.com/>>.

²⁰⁰ Interview of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

²⁰¹ Impact Assessment of 2008 Proposal to Revise the EU ETS, *supra* note 26 at 118, 120; European Commission Communication Background (Part II), *supra* note 31 at 70, 73. In the aviation sector, free allocation was used alongside the inclusion of international flights but offered no alternative to the latter measure because it was unable to achieve policy-makers’ goal of reducing emissions from these flights; see part 3.5, above.

²⁰² Interview of European Commission official B (27 October 2015).

²⁰³ “EU Carbon Leakage Analysis ‘Contains Crucial Flaw’”, *ENDS Europe* (20 May 2010), online: ENDS Europe <<http://www.ends europe.com/>>.

²⁰⁴ Greens/EFA, “The Reality of the Carbon Leakage Risk in Europe and Policy Response for the Few Affected Sectors: Political Summary of the Study by Climate Strategies on Carbon Leakage” (2010); Simone Cooper & Michael Grubb, “Revenue Dimensions of the EU ETS Phase III” (2011) Climate Strategies; Karsten Neuhoff et al, “Carbon Control and Competitiveness Post 2020: The Cement Report” (2014) Climate Strategies at 43; Karsten Neuhoff et al, “Carbon Control and Competitiveness Post 2020: The Steel Report” (2014) Climate Strategies at 8.

²⁰⁵ Interviews of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015), a think tank expert (28 October 2015), and Tomas Wyls, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

Industry stakeholders likely preferred free allocation due to its significant and overgenerous financial value. A 2018 report estimated that free allocation allowed energy-intensive industries in the EU ETS to reap windfall profits worth over EUR 24bn between 2008 and 2015.²⁰⁶ This figure includes windfall profits worth over EUR 8bn for the steel industry, EUR 5bn for the cement sector, over EUR 4bn for refineries, and close to EUR 2bn for petrochemicals.²⁰⁷ Unsurprisingly given these figures, two interviewees noted that “industry seems to be quite happy” and “very comfortable” with free allocation,²⁰⁸ and a European Commission official stated that free allocation “ticks some of the political boxes for the transition to carbon pricing; it has made companies happier.”²⁰⁹ The 2018 report estimates that EU governments forewent revenues of at least EUR 143bn during that time by using free allocation instead of full auctioning.²¹⁰

When the European Commission tabled its proposal to establish the EU ETS in 2001, it explained the system’s design but did not address BCAs and instead exclusively discussed free allocation.²¹¹ This was due to the political advantages of free allocation, which enabled policy-makers to gain initial buy-in for the EU ETS from industry stakeholders and control the distributional impacts under the system.²¹² By the time BCAs became a subject of debate in the EU ETS, free allocation had been entrenched already in the system’s architecture and its enormous financial value to industry stakeholders provided the momentum that hindered a

²⁰⁶ Julie-Anne Richards, Klaus Röhrig & Maeve McLynn, “European Fat Cats: EU Energy Intensive Industries: Paid to Pollute, Not to Decarbonise” (2018) Climate Action Network Europe at 8; see also Neil Roberts, “Polluters ‘Profiting’ From ETS, Warn Campaigners”, *ENDS Europe* (9 April 2018), online: [ENDS Europe](http://www.endseurope.com/) <<http://www.endseurope.com/>>. A 2011 report documented similar results; see Rob Elsworth et al, “Carbon Fat Cats 2011: The Companies Profiting from the EU Emissions Trading Scheme” (2011) Sandbag.

²⁰⁷ Richards, Röhrig & McLynn, *supra* note 206 at 8.

²⁰⁸ Interviews of a consultant (17 June 2016) and Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

²⁰⁹ Interview of European Commission official A (27 October 2015).

²¹⁰ Richards, Röhrig & McLynn, *supra* note 206 at 9.

²¹¹ See EU ETS Proposal, *supra* note 2 at 3, 11-12.

²¹² See Markus Wråke et al, “What Have We Learnt from the European Union’s Emissions Trading System?” (2012) 41 Suppl 1 *Ambio* 12 at 19; A Denny Ellerman, Claudio Marcantonini & Aleksandar Zaklan, “The European Union Emissions Trading System: Ten Years and Counting” (2016) 10:1 *Review of Environmental Economics and Policy* 89 at 93; Hei Sing (Ron) Chan, Shanjun Li & Fan Zhang, “Firm Competitiveness and the European Union Emissions Trading Scheme” (2013) 63 *Energy Policy* 1056 at 1057-1058; see also section 2.3.4, above.

policy change to BCAs. Over the years, free allocation has become a proven approach to address competitiveness concerns that has been used in the EU ETS since the inception of the system and has enjoyed a wide acceptance among stakeholders. By contrast, a change of approach would have entailed a loss of significant financial value for industry stakeholders, uncertainty for both policy-makers and stakeholders, and the risk of repercussions for international relations.²¹³ A consultant elaborated on the uncertainty of introducing BCAs:

Free allocation is an established system. People know it, people like it. You have something that you know works, and the other approach comes with a big question mark. Uncertainty is an important argument. Even if you knew that there [were no repercussions for international relations], you would not like to introduce [BCAs] because you just have the uncertainty [of a new system]. Never change a winning team.²¹⁴

To summarize, competitiveness concerns were at the forefront of the discourse on BCAs for stationary installations in the EU ETS. Industry stakeholders preferred free allocation as an alternative to BCAs due to its significant and overgenerous financial value, and policy-makers enjoyed the political advantages that came with this value. Over the years, free allocation became entrenched in the EU ETS and provided a momentum that hindered the introduction of BCAs. As a result, a preference for free allocation among industry stakeholders and, in turn, policy-makers, explains the absence of BCAs for stationary installations in the EU ETS.

4.7 Domestic Political Opposition

This part examines whether domestic political opposition led to the absence of BCAs for stationary installations in the EU ETS. The discussion commences with an overview of EU stakeholders and their positions (section 4.7.1) before turning to the impact EU stakeholder opposition had on the policy outcome (section 4.7.2). The evidence shows that stakeholders' predominantly negative attitude towards BCAs for stationary installations and policy-

²¹³ See part 4.5, above.

²¹⁴ Interview of a consultant (17 June 2016); also interview of a think tank expert (28 October 2015).

makers' limited willingness to engage in a discussion on these measures explain the policy outcome.

4.7.1 EU Stakeholders and Their Positions

Few EU stakeholders expressed outright support for BCAs in the EU ETS. The only outspoken, active, and persistent proponents were France²¹⁵ and cement industry association Cembureau,²¹⁶ although the latter's support for BCAs seemed less unequivocal more recently.²¹⁷ Other stakeholders supported BCAs at times, but they were much less vocal and showed openness to consider these measures further rather than voicing outright support for them. For instance, industries that showed interest in considering BCAs, at the margins of the debate and without running any campaigns on the issue, were the fertilizer industry represented by Fertilizers Europe,²¹⁸ the ceramic industry represented by Cerame-unie,²¹⁹ the

²¹⁵ EurActiv, "Sarkozy", *supra* note 101; Frédéric Simon, "France to Renew Calls for EU Carbon Tariff", *EurActiv* (28 February 2010), online: EurActiv <<http://www.euractiv.com/>> [Simon, "France to Renew Calls"]; "France Takes Carbon Tariff Campaign to Washington", *EurActiv* (8 April 2010), online: EurActiv <<http://www.euractiv.com/>>; Ben Garside, "France Seeks to Include Cement Importers in EU ETS", *Carbon Pulse* (17 November 2015), online: Carbon Pulse <<http://carbon-pulse.com/>>; "Berlin, Brussels Dismiss Call for CO2 Tax on Trump's US", *EurActiv* (14 November 2016), online: EurActiv <<http://www.euractiv.com/>> [EurActiv, "Berlin, Brussels"]; Jean Chemnick, "Quitting Paris? Pay a Carbon Tax, Macron Says", *E&E News* (4 December 2018), online: E&E News <<https://www.eenews.net/>>; Neil Roberts, "France Calls for EU Carbon Floor Price and Border Tariff", *ENDS Europe* (22 March 2018), online: ENDS Europe <<http://www.endseurope.com/>>.

²¹⁶ Cembureau, "Cembureau's Views on the Commission Communication on the 2015 International Climate Agreement" (26 June 2013), online: European Commission <<http://ec.europa.eu/>> (retrieved 24 August 2015) at 2; Cembureau, "Post 2020 Climate and Energy Legislation: The Cement Industry's Reflections on a Post-2020 Climate Policy" (7 July 2014), online: European Commission <<http://ec.europa.eu/>> (retrieved 16 September 2014) at 2; Cembureau, Submission to European Commission's Consultation of 19 December 2014 on Revision of the EU Emission Trading System (EU ETS) Directive, online: European Commission <<http://ec.europa.eu/>> (retrieved 21 August 2015).

²¹⁷ See Cembureau, "Comment", *supra* note 199.

²¹⁸ Fertilizers Europe, Submission to European Commission's Consultation of 19 December 2014 on Revision of the EU Emission Trading System (EU ETS) Directive, online: European Commission <<http://ec.europa.eu/>> (retrieved 21 August 2015).

²¹⁹ Cerame-Unie, Submission to European Commission's Consultation of 8 May 2014 on Emission Trading System (EU ETS) Post-2020 Carbon Leakage Provisions, online: European Commission <<http://ec.europa.eu/>> (retrieved 21 August 2015).

mineral wool industry represented by Eurima,²²⁰ the coal and lignite industry represented by Euracoal,²²¹ and the mining industry represented by Euromines.²²² EU Member States that at times supported BCAs included Italy, whose Prime Minister Silvio Berlusconi joined French Prime Minister Nicolas Sarkozy in one of the latter's calls for BCAs,²²³ and Poland.²²⁴ Some members of the European Parliament, including French member Edouard Martin,²²⁵ and the umbrella association of European workers represented by the European Trade Union Confederation²²⁶ also spoke out in favour of BCAs.

In contrast to this limited support for BCAs, opposition to these measures was more prevalent. Opposition from industry stakeholders came from the umbrella association of European industry and employers BusinessEurope,²²⁷ the steel industry represented by Eurofer,²²⁸ the chemicals industry represented by CEFIC,²²⁹ the petroleum refining industry represented by FuelsEurope,²³⁰ the non-ferrous metals industry represented by

²²⁰ Eurima, Submission to European Commission's Consultation of 8 May 2014 on Emission Trading System (EU ETS) Post-2020 Carbon Leakage Provisions, online: European Commission <<http://ec.europa.eu/>> (retrieved 21 August 2015).

²²¹ Euracoal, "Response to Public Consultation on the 2015 International Climate Change Agreement" (26 June 2013), online: European Commission <<http://ec.europa.eu/>> (retrieved 24 August 2015) at 8; interview of an industry spokesperson (6 November 2015).

²²² Euromines, Submission to European Commission's Consultation of 19 December 2014 on Revision of the EU Emission Trading System (EU ETS) Directive, online: European Commission <<http://ec.europa.eu/>> (retrieved 22 May 2015).

²²³ "Italy Joins French Calls for EU Carbon Tariff", *EurActiv* (16 April 2010), online: EurActiv <<http://www.euractiv.com/>>.

²²⁴ ENDS Europe, "French Push", *supra* note 46.

²²⁵ Susanna Ala-Kurikka, "MEP Joins Call for CO2 Import Charge", *ENDS Europe* (1 June 2015), online: ENDS Europe <<http://www.endseurope.com/>>.

²²⁶ Impact Assessment of 2008 Proposal to Revise the EU ETS, *supra* note 26 at 203; European Trade Union Confederation, "The ETUC Response to the EC Consultation on 'The 2015 International Climate Change Agreement'" (26 June 2013), online: European Commission <<http://ec.europa.eu/>> (retrieved 24 August 2015) at 2.

²²⁷ BusinessEurope on Carbon Leakage, *supra* note 43 at 2; BusinessEurope, "European Business Recommendations on EU Policies for Climate and Energy" (7 October 2010), online: BusinessEurope <<https://www.besnesseurope.eu/>> at 11.

²²⁸ E.g. Garside, "EU Nation Envoys", *supra* note 119.

²²⁹ Interview of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015).

²³⁰ Garside, "Carbon Import Tariffs", *supra* note 57.

Eurometaux,²³¹ and the pulp and paper industry represented by CEPI.²³² Other industry stakeholders that opposed BCAs included the umbrella association of German industries²³³ and the German chemicals industry association.²³⁴ Further opponents were the European Commission²³⁵ as well as the EU Member States of Germany,²³⁶ the Netherlands,²³⁷ Sweden,²³⁸ and the United Kingdom.²³⁹ The NGO WWF²⁴⁰ and environmental think tank Third Generation Environmentalism²⁴¹ also spoke out against BCAs. Table 3 offers an overview of the most prominent stakeholders and their positions on BCAs for stationary installations in the EU ETS.

On the one hand, industry stakeholders preferred free allocation to BCAs.²⁴² Even Cembureau supported BCAs only as long as it would not imply a loss of free allocation.²⁴³

²³¹ Eurometaux Public Consultation, *supra* note 121 at 1, 3.

²³² EU, European Commission, “Report of the Ad Hoc Meeting of the ECCP Working Group on Emissions Trading on Carbon Leakage and Auctioning” (11 April 2008), online: European Commission <<http://ec.europa.eu/>> (retrieved 5 August 2015) at 5.

²³³ Bundesverband der Deutschen Industrie, *supra* note 122 at 2, 3.

²³⁴ Verband der Chemischen Industrie, “Public Consultation in Preparation of an Analytical Report on the Impact of the International Climate Negotiations on the Situation of Energy Intensive Sectors” (30 March 2010), online: European Commission <<http://ec.europa.eu/>> (retrieved 14 August 2015) at 3, 4.

²³⁵ E.g. “Mandelson Rejects Carbon Tax on EU Imports”, *ENDS Europe* (18 December 2006), online: ENDS Europe <<http://www.endseurope.com/>>; Joshua Chaffin, Nikki Tait & Tony Barber, “De Gucht Warns on Carbon Border Tax”, *Financial Times* (12 January 2010), online: Financial Times <<http://www.ft.com/>>; Garside, “Carbon Import Tariffs”, *supra* note 57; Roach, *supra* note 42; EurActiv, “Berlin, Brussels”, *supra* note 215.

²³⁶ E.g. “Carbon Leakage Concerns Dominate EU ETS Debate”, *ENDS Europe* (11 September 2008), online: ENDS Europe <<http://www.endseurope.com/>>; “Machnig: CO2 Import Tax Plan Is Eco-Imperialism”, *ENDS Europe* (24 July 2009), online: ENDS Europe <<http://www.endseurope.com/>>; EurActiv, “Berlin, Brussels”, *supra* note 215.

²³⁷ Palmer, *supra* note 86.

²³⁸ EurActiv, “Trade War Looms”, *supra* note 168.

²³⁹ “Britain and US Up in Arms Against EU Carbon Tax”, *EurActiv* (23 January 2008), online: EurActiv <<http://www.euractiv.com/>>; Barber, *supra* note 99.

²⁴⁰ Andrew Bounds, “EU Turns Away from Carbon Tax on Imports”, *Financial Times* (25 November 2007), online: Financial Times <<http://www.ft.com/>>; interview of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

²⁴¹ Third Generation Environmentalism, “Public Consultation in Preparation of an Analytical Report on the Impact of the International Climate Negotiations on the Situation of Energy Intensive Sectors” (12 April 2010), online: European Commission <<http://ec.europa.eu/>> (retrieved 14 August 2015) at 12; interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁴² See part 4.6, above.

Table 3: Domestic stakeholder positions in the EU stationary installations case

Opposition	Support
BusinessEurope (umbrella association)	Cembureau (cement industry)
Eurofer (steel industry)	France
CEFIC (chemicals industry)	
FuelsEurope (petroleum refining industry)	
Eurometaux (non-ferrous metals industry)	
CEPI (pulp and paper industry)	
Germany, Netherlands, Sweden, United Kingdom	
NGOs (WWF, Third Generation Environmentalism)	

On the other hand, stakeholder attitudes towards BCAs may also be explained by their degree of vulnerability to retaliation from third countries, which gave rise to fears of trade war.²⁴⁴ Exports are the trade flows that other countries would target in response to a BCA. Therefore, the higher the importance of exports to markets outside the EU for a country, industry sector, or company, the higher the vulnerability to retaliation from third countries. Sectors or companies with a mostly intra-EU value chain were more likely to support BCAs than those with a more globally integrated value chain and significant extra-EU exports.²⁴⁵

This helps explain, for example, Germany's opposition to BCAs and France's willingness to support these measures. With significant extra-EU trade surpluses in each year since the EU ETS came into operation in 2005 and which reached EUR 179bn in 2015,²⁴⁶

²⁴³ See Cembureau, "Comment", *supra* note 199; see also Vanderborght, *supra* note 199.

²⁴⁴ See section 4.5.1, above.

²⁴⁵ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

²⁴⁶ EU, Eurostat, "Extra-EU28 Trade, by Member State, Total Product (tet00055)" (2016), online: Eurostat <<http://ec.europa.eu/eurostat/>> (retrieved 8 March 2019).

Germany's economy was highly export-oriented. France's balance of trade, on the other hand, was much more neutral over the same period, ranging from an extra-EU trade deficit of EUR 4bn in 2008 to a modest surplus of EUR 24bn in 2015, with single-digit figures in all but two years.²⁴⁷ Therefore, France's economy was much less dependent on exports to markets outside the EU than Germany's. With a view to industry, the EU chemicals sector registered significant extra-EU trade surpluses in each year between 2005 and 2015, ranging from EUR 30bn in 2008 to EUR 48bn in 2013.²⁴⁸ The figures evidencing Germany's and the chemical industry's export-orientation also explain the opposition to BCAs from the umbrella association of German industries and the German chemicals industry, respectively.

Also the EU steel sector relied on extra-EU exports. Between 2008 and 2016, exports of steel products to third countries exceeded imports in all but two years. In 2012, the sector exported some 27m tonnes of steel products to third countries, with some 14m tonnes of imports in the same year. The two years in which imports exceeded exports were 2008 and 2016, with relatively small trade deficits of some 2m tonnes of steel products in each.²⁴⁹

Curiously, however, Eurofer did not always oppose BCAs. In fact, the association supported BCAs on steel imports in January 2010,²⁵⁰ before opposing such measures in May 2015.²⁵¹ Interviewees offered a number of hypotheses to explain this change in position: there may have been disagreement on BCAs between EU steel companies,²⁵² depending on their balance of extra-EU trade, and their influence within Eurofer may have changed over time; a German director-general that took office in October 2014 may have been swayed by

²⁴⁷ *Ibid.*

²⁴⁸ European Chemical Industry Council, "Facts & Figures 2016 of the European Chemical Industry" (2016) at 14.

²⁴⁹ Eurofer, *Facts & Figures*, online: Eurofer <<http://www.eurofer.org/>> (retrieved 7 August 2015).

²⁵⁰ "Steelmakers Call for 'Achievable' ETS Benchmarks", *ENDS Europe* (12 January 2010), online: ENDS Europe <<http://www.endseurope.com/>>.

²⁵¹ Garside, "EU Nation Envoys", *supra* note 119.

²⁵² Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015). An example of such disagreement may be seen in steel company ArcelorMittal's call for BCAs in February 2017: Lakshmi Mittal, "A Carbon Border Tax is the Best Answer on Climate Change", *Financial Times* (12 February 2017), online: Financial Times <<http://www.ft.com/>>.

the umbrella association of German industries;²⁵³ Eurofer may have decided not to jeopardize the Transatlantic Trade and Investment Partnership trade agreement between the US and the EU, negotiations for which commenced in 2013;²⁵⁴ or Eurofer may have shifted its focus on anti-dumping measures,²⁵⁵ recognizing them as more effective to afford protection against foreign competition given the relatively low carbon price in the EU ETS,²⁵⁶ which dropped from around EUR 15 per tonne of CO₂-eq in 2010 to around a third of that in 2015.

Umbrella association BusinessEurope opposed BCAs because most of its members took that position, with only the relatively small cement sector having supported these measures. The EU cement industry used to experience significant imports from outside the EU, although imports declined considerably in more recent years. Imports of cement clinker, which is a carbon-intensive intermediate product in the production of cement that is traded internationally, far outnumbered exports from 2005 to 2008, with a peak of almost 16m tonnes of imported cement clinker in 2007 and exports of less than 2m tonnes in the same year. Between 2009 and 2015, however, this trend was reversed with exports increasingly exceeding imports. In 2014, exports of cement clinker peaked at almost 12m tonnes, with less than 1m tonnes of imports.²⁵⁷ Reflective of this altered business environment, Cembureau appeared to distance itself from its previous support for BCAs in February 2017 and instead advocated the continued application of free allocation.²⁵⁸

With respect to France, there may be other possible explanations for the country's enthusiasm for BCAs that go beyond that found in its balance of trade. The value-added tax,

²⁵³ Interview of European Commission official B (27 October 2015).

²⁵⁴ See Eurofer, Speech of President Robrecht Himpe delivered at European Steel Day, Brussels, 28 May 2015, online: Eurofer <<http://www.eurofer.org/>> (retrieved 29 February 2019) at 4, in which Eurofer “fully support[s]” that agreement, notes that “[t]he EU steel industry should benefit” from it, and highlights that “[a]ligning standards is in [Eurofer’s] interest.”

²⁵⁵ See e.g. Zuzana Gabrizova & Martina Dupáková, “Eurofer Boss: Europe’s Steel Industry Needs Modern Trade Defence Instruments”, *EurActiv* (16 July 2015), online: EurActiv <<http://www.euractiv.com/>>.

²⁵⁶ Interviews of a consultant (17 June 2016) and Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁵⁷ EU, Eurostat, “Sold Production, Exports and Imports by PRODCOM List (NACE Rev. 2) - Annual Data (DS-066341), 23511100 - Cement Clinker” (2016), online: Eurostat <<http://ec.europa.eu/eurostat/>> (retrieved 8 March 2019).

²⁵⁸ See Cembureau, “Comment”, *supra* note 199; see also part 4.6, above.

which most countries use today, was developed and first adopted by France.²⁵⁹ Given that a BCA essentially works like a value-added tax, this may explain France's fondness of BCAs. Additionally, pointing to cultural reasons, one interviewee indicated that the French authorities may be perceived as having more protectionist reflexes in response to competitiveness issues than other governments.²⁶⁰ Another interviewee confirmed this perception by referring to "the French tradition of overprotecting everything."²⁶¹ One interviewee remarked: "I don't want to say [it is] in the [French] DNA, but it seems to be something that the French hold particularly dear."²⁶² Another interviewee put it more bluntly: "It's in their blood."²⁶³ In addition, several interviewees described the cement industry, itself a big supporter of BCAs, as an influential stakeholder in France.²⁶⁴

With a view to Germany, there was a relatively brief and curious period of time when Germany appeared to support BCAs together with France. In September 2009, German chancellor Angela Merkel was reported to have joined French President Nicolas Sarkozy in his calls for BCAs,²⁶⁵ and they wrote a joint letter to the Secretary-General of the United Nations ahead of the 2009 Copenhagen climate summit "calling for the possible introduction of 'appropriate adjustment measures' against countries that do not make sufficient commitments on climate change," although German sources in Brussels were quick to point out that Angela Merkel "has not made up her mind yet on the specific issue of carbon tariffs."²⁶⁶ In May 2010, Germany distanced itself further when a German government

²⁵⁹ Liam Ebrill et al, *The Modern VAT* (Washington, DC: International Monetary Fund, 2001) at 1, 4.

²⁶⁰ Interview of European Commission official B (27 October 2015).

²⁶¹ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁶² Interview of European Commission official B (27 October 2015).

²⁶³ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁶⁴ Interviews of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015), Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015), and European Commission official B (27 October 2015).

²⁶⁵ "Paris and Berlin to Propose EU Border Tax on CO₂", *ENDS Europe* (21 September 2009), online: *ENDS Europe* <<http://www.endseurope.com/>>.

²⁶⁶ Simon, "France to Renew Calls", *supra* note 215.

official called Germany's seeming support of BCAs in previous months "a premature conclusion" and "something that comes from Paris," which "Germany is maintaining a certain distance from."²⁶⁷ In November 2016, Germany rejected former French President Nicolas Sarkozy's call for BCAs.²⁶⁸ However, interviewees had no recollection of this brief ostensible change in position,²⁶⁹ which offers an indication that Germany had in fact never fully committed to supporting BCAs but was merely paying lip service to an idea of which the French President was particularly fond. Indeed, a European Commission official described Germany as "leading the pack [of EU Member States] against [BCAs]."²⁷⁰

The European Commission opposed BCAs due to concerns about repercussions for international relations and a predominant preference for free allocation among stakeholders.²⁷¹ The EU executive also warned of "higher cost of inputs that would emerge, which may cause problems for European producers further downward in the production chain, potentially limiting any positive effects in terms of avoiding net carbon leakage."²⁷² Referring to this effect on downstream industries, EU Commissioner for Trade Peter Mandelson noted "pitfalls and negative side effects for other sectors and consumers" and that "[i]nput prices for industry would rise, which would in turn push up prices of European exports and reduce competitiveness."²⁷³ In interviews, European Commission officials called BCAs measures of "last resort" and even referred to them as "nuclear option."²⁷⁴ Summing

²⁶⁷ ENDS Europe, "French Push", *supra* note 46.

²⁶⁸ EurActiv, "Berlin, Brussels", *supra* note 215.

²⁶⁹ Interviews of European Commission official A (27 October 2015), European Commission official B (27 October 2015), Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015), Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015), and Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁷⁰ Interview of European Commission official B (27 October 2015).

²⁷¹ See parts 4.5 and 4.6, above.

²⁷² Impact Assessment of 2008 Proposal to Revise the EU ETS, *supra* note 26 at 118.

²⁷³ Mandelson Speech 2008, *supra* note 45 at 3. The European Commission also noted these concerns in subsequent reports; see European Commission Communication, *supra* note 18 at 12; European Commission Communication Background (Part II), *supra* note 31 at 71.

²⁷⁴ Interview of European Commission official C (27 October 2015).

up the European Commission's sentiment towards BCAs, one official expressed: "We think it's a can of worms, frankly."²⁷⁵

The environmental community tended to view BCAs with skepticism. For example, citing studies that found no evidence of policy-induced carbon leakage in the EU ETS,²⁷⁶ representatives of the environmental community considered the existing policy framework to protect EU industry sufficiently against international competition.²⁷⁷ Therefore, the environmental community saw no need for BCAs.²⁷⁸ One interviewee even called into question the concept of carbon leakage as such,²⁷⁹ although this conclusion is not supported by the literature.²⁸⁰ Another interviewee remarked that the mere engagement in a discussion on BCAs could be seen as an implicit acknowledgement of the occurrence of carbon leakage.²⁸¹

4.7.2 Impact of EU Stakeholder Opposition

Since the inception of the EU ETS, the deliberations of BCAs for stationary installations have been relatively restrained. In fact, the discourse never developed into a full-fledged debate.²⁸² Few EU stakeholders actively supported BCAs for stationary installations and the

²⁷⁵ Interview of European Commission official B (27 October 2015).

²⁷⁶ See section 2.2.1, above.

²⁷⁷ Interviews of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015) and Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁷⁸ Interviews of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015), Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015), and Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

²⁷⁹ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015).

²⁸⁰ See section 2.2.1, above.

²⁸¹ Interview of Sam Van Den Plas, Policy Officer on Climate & Energy, World Wide Fund for Nature (2 November 2015).

²⁸² Interviews of Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015), an Eurometaux representative (20 June 2016), and a think tank expert (28 October 2015).

vast majority strongly opposed these measures. An opponent of BCAs described calls for these measures as “a request by few that do not have the entire economy in mind.”²⁸³ In the words of another interviewee, there was no “monolithic stakeholder demand” for BCAs in the EU ETS.²⁸⁴

As a consequence, the European Commission’s willingness to engage in a discussion on BCAs for stationary installations appeared to be limited.²⁸⁵ A European Commission official confirmed this perception: “We are not *demandeur*. We will not necessarily go through a lot of effort to convince people that [BCAs are] not appropriate if this does not get more traction.”²⁸⁶

Given the limited support for BCAs and policy-makers’ sparse interest in these measures, the opponents of BCAs did not feel compelled to voice their opposition with great vigour.²⁸⁷ One industry representative described the sentiment among opponents as “apathy” rather than opposition.²⁸⁸ In fact, the opponents were prudent not to let the topic develop into a veritable public debate to prevent it from gaining traction.²⁸⁹

When asked whether EU stakeholder opposition explained the absence of BCAs for stationary installations in the EU ETS, a European Commission official disclosed: “It helped [to maintain the European Commission’s opposition to BCAs]. It helped. [German opposition to BCAs] was always quite useful for us. Had there been a united stakeholder

²⁸³ Interview of Peter Botschek, Director of Energy & HSE, European Chemical Industry Council (CEFIC) (29 October 2015).

²⁸⁴ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015); also interviews of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015) and a consultant (17 June 2016).

²⁸⁵ Interview of Tomas Wyns, Doctoral Researcher, Vrije Universiteit Brussel, former Policy Coordinator, Climate Action Network Europe (26 October 2015).

²⁸⁶ Interview of European Commission official B (27 October 2015).

²⁸⁷ Interview of an Eurometaux representative (20 June 2016).

²⁸⁸ Interview of Nicola Rega, Climate Change & Energy Director, Confederation of European Paper Industries (CEPI) (5 November 2015).

²⁸⁹ Interview of Sanjeev Kumar, CEO & Founding Director, Change Partnership, former Senior Associate, Third Generation Environmentalism, former Policy Coordinator, World Wide Fund for Nature (30 October 2015). For instance, non-ferrous metals industry association Eurometaux stated that “there should be no further discussion of [BCAs]”; Eurometaux Public Consultation, *supra* note 121 at 1.

block in favour of [BCAs], I think we might actually have [BCAs in the EU ETS], who knows.”²⁹⁰

Whether EU stakeholder opposition would have persisted in the absence of both concerns about repercussions for international relations and a preference for free allocation is unclear. However, had there been no fears about repercussions for international relations, the allure of free allocation for industry stakeholders and, in turn, policy-makers likely would have still prevented BCAs for stationary installations in the EU ETS. At the same time, the reverse appears to be true as well: It seems unlikely that, in the absence of a preference for free allocation, BCAs would have been put in place despite concerns about repercussions for international relations.

In summary, the vast majority of stakeholders strongly opposed BCAs for stationary installations in the EU ETS. Perhaps unsurprisingly, therefore, an in-depth deliberation of these measures never took place. The evidence indicates that stakeholders’ predominantly negative attitude towards BCAs and policy-makers’ limited willingness to engage in a discussion on these measures, both due to concerns about repercussions for international relations and a predominant preference for free allocation among stakeholders,²⁹¹ explain the absence of BCAs for stationary installations in the EU ETS.

4.8 Conclusion

This chapter studied the EU’s experience with BCAs for stationary installations in the bloc’s cap-and-trade system, which has been operational since 2005. BCAs for stationary installations have been the subject of recurring, albeit relatively muted, debate throughout the existence of the EU ETS. Nevertheless, BCAs for stationary installations have never been adopted in the EU ETS. This chapter examined the factors leading to this policy outcome.

The evidence shows that stakeholders’ predominantly negative attitude towards BCAs for stationary installations and policy-makers’ limited willingness to engage in a discussion

²⁹⁰ Interview of European Commission official B (27 October 2015).

²⁹¹ See parts 4.5 and 4.6, above.

on these measures prevented their adoption. Industry stakeholders preferred free allocation as an alternative to BCAs, which offered them significant financial value, and policy-makers enjoyed the political advantages that came with this value. At the same time, the use of free allocation avoided the risk of repercussions for international relations. Particularly opposed by developing countries, BCAs raised the prospect of trade wars and retaliation, and policy-makers were also concerned about BCAs' negative impact on the atmosphere at the international climate negotiations.

By contrast, while the level of effort required to design BCAs in compliance with WTO law is unclear, there were no concerns about WTO law among policy-makers that led to the absence of BCAs for stationary installations in the EU ETS. Similarly, although the degree of complexity involved in implementing BCAs for basic industrial products is uncertain, the evidence indicates that concerns about their administrative complexity or effectiveness did not prevent their introduction in the EU ETS. However, some opponents of BCAs might have alleged concerns about WTO law and the administrative complexity of these measures to reinforce their opposition, despite experts' assertions to the contrary.

The EU's experience with BCAs for stationary installations in its ETS indicates that concerns about repercussions for international relations may prevent policy-makers from adopting these measures. Similarly, the availability, and indeed allure, of free allocation as an alternative measure may make it difficult for policy-makers to adopt BCAs. Given the universal use of free allocation in cap-and-trade systems as a means to address competitiveness concerns, this does not bode well for the prospect of BCAs for stationary installations as part of cap-and-trade.

The next chapter turns to California to analyze the inclusion of electricity imports in the US state's cap-and-trade program, which offers an example of a BCA that has been included from the start of the program but proved challenging for policy-makers to implement.

5 The Inclusion of Electricity Imports in California's Cap-and-Trade Program

5.1 Introduction

This chapter examines California's experience with including electricity imports in its cap-and-trade program. The inclusion of electricity imports offers a rare example of an adopted form of BCA. However, while policy-makers adopted the measure, they subsequently amended it so that, in fact, the BCA never became effective as originally intended but only in a weakened form. By testing empirically the potential barriers to BCAs that were set out in chapter 2, this case study aims to determine the factors leading to these outcomes, namely the adoption of the BCA and its subsequent weakening.

The inclusion of electricity imports is not a BCA as commonly envisioned. While BCAs typically cover emissions from the manufacturing process of physical products, California's measure captures the emissions from the process of generating electricity. However, similar to other BCAs, the measure puts in- and out-of-state electricity generators on a level playing field by extending the domestic carbon price to electricity imports. Therefore, both scholars and policy-makers widely consider the inclusion of electricity imports a form of BCA.¹

¹ See Economic and Allocation Advisory Committee, "Allocating Emissions Allowances Under a California Cap-and-Trade Program: Recommendations to the California Air Resources Board and California Environmental Protection Agency" (March 2010), online: EAAC <<http://www.climatechange.ca.gov/eaac/>> (retrieved 22 September 2017) at 46; US, California Air Resources Board, *Proposed Regulation to Implement the California Cap-and-Trade Program, Staff Report: Initial Statement of Reasons* (28 October 2010), online: ARB <<https://www.arb.ca.gov/>> (retrieved 7 March 2018) at K-33 [ARB, "ISoR"]; US, California Air Resources Board, *California's Cap-and-Trade Program, Final Statement of Reasons* (October 2011), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 March 2018) at 1175 [ARB, "FSoR"]; Michael Mehling et al, "Beat Protectionism and Emissions at a Stroke" (2018) 559 *Nature* 321; Aaron Cosbey et al, "Developing Guidance for Implementing Border Carbon Adjustments: Lessons, Cautions, and Research Needs from the Literature" (2019) 13:1 *Review of Environmental Economics and Policy* 3 at 4 n 3; see also Thomas Cottier et al, "Differential Taxation of Electricity: Assessing the Compatibility with WTO Law, EU Law and the Swiss-EEC Free Trade Agreement" (2014) World Trade Institute, Universität Bern, who note that "[t]he extension of a domestic electricity tax on imported electricity is deemed to be a border tax adjustment" (at 31). Others hold that California's treatment of emissions in the electricity sector resembles a BCA: World Bank, *State and Trends of Carbon Pricing 2015* (Washington, DC: World Bank, 2015) at 79; Justin Caron, Sebastian Rausch & Niven Winchester, "Leakage from Sub-National Climate Policy: The Case of California's Cap-and-Trade Program" (2015) 36:2 *The Energy Journal* 167 at 169.

In 2006, Assembly Bill (AB) 32 directed the Air Resources Board (ARB) to adopt policies to achieve the state's 2020 emission reduction target. Reflecting the fact that imports of electricity account for a significant share of emissions from California's electricity consumption, AB 32 included the general requirement to reduce emissions from imported electricity. In 2011, the ARB adopted California's cap-and-trade program, which included a BCA on imports of electricity.

Although imports of electricity have been included from the start of the cap-and-trade program, policy-makers have been struggling to prevent market participants from circumventing the compliance obligation for imported electricity through resource shuffling, which is a form of carbon leakage that results in the false appearance of emissions reductions. In fact, policy-makers were aware of concerns about resource shuffling before the adoption of the BCA, but they were confident that these concerns could be addressed during the implementation of the measure. However, policy-makers were not able to overcome these concerns after all. While a strong coalition of policy-makers and NGOs was able to fend off opposition to the BCA initially, the evidence shows that political opposition from a group of major utilities, driven by concerns about regulatory ambiguity and the BCA's effectiveness in achieving emissions reductions, subsequently led the ARB to adopt exemptions that weakened the BCA and are likely to cause significant carbon leakage.

Following the adoption of the BCA, a group of major utilities criticized the prohibition of resource shuffling that was included in the initial program design on the grounds that it created regulatory ambiguity. Their requests for clarification led policy-makers to adopt a list of exemptions that had previously been prohibited as resource shuffling but were henceforth deemed legal. Existing research shows that the exemptions are so permissive in scope that they are likely to cause significant carbon leakage. Therefore, although policy-makers sought to prevent resource shuffling, their initial approach created regulatory ambiguity. Conversely, while the revised approach using the exemptions created regulatory clarity, it was unable to prevent resource shuffling. The exemptions weakened the BCA on imports of electricity by undermining its effectiveness in achieving emissions reductions. In fact, because unused allowances created through resource shuffling can be sold to market participants in other sectors, the exemptions provide an outlet for carbon leakage beyond the

electricity sector and thus put at risk the environmental integrity of the entire cap-and-trade program.

California's experience with applying a BCA on imports of electricity in its cap-and-trade program suggests that the extent to which market participants are able to circumvent a BCA, thereby compromising its effectiveness, may only become evident after the adoption of such a measure. California's struggle to prevent market participants from circumventing the compliance obligation for imports of electricity may also reflect any one jurisdiction's limited leverage over regulating emissions in foreign markets. More generally, this case illustrates the limits of implementing a BCA in practice.

Interviews with 17 individuals informed this case study. This includes four government officials, three industry representatives, one representative of the environmental community, one cap-and-trade market expert, six academics, and two consultants. Seven individuals were consulted in person in Sacramento, California, in October 2017, while 10 interviews were conducted over the phone between October and November 2017 and in August 2018.

The remainder of this chapter proceeds as follows. Part 5.2 offers a chronological overview and presents the main design parameters of California's cap-and-trade program, with a focus on the inclusion of electricity imports in that system. Parts 5.3 to 5.7 examine a number of factors to explain the policy outcomes in this case, specifically concerns about WTO law or the US DCC (part 5.3), concerns about repercussions for international or US state-level relations (part 5.4), a preference for alternative measures (part 5.5), practical concerns about the administrative complexity of the BCA or its effectiveness in achieving emissions reductions (part 5.6), and domestic political opposition (part 5.7). Part 5.8 concludes by summarizing the case study's findings.

5.2 Chronological Overview and Policy Details

In June 2005, Governor Arnold Schwarzenegger signed an executive order that established several emission reduction targets for California, namely reducing the state's emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by

2050.² In September 2006, Governor Schwarzenegger signed AB 32, a landmark bill that directed the ARB to adopt policies to achieve the 2020 emission reduction target.³ Two years later, in December 2008, the ARB adopted a scoping plan proposing a suite of policies to achieve the 2020 target, which included the proposal to develop a cap-and-trade program.⁴ In October 2010, the ARB released the draft design of a cap-and-trade program,⁵ and it adopted its program in October 2011.⁶ In January 2013, the compliance obligation under California's cap-and-trade program began to take effect. In January 2014 and 2018, California's cap-and-trade program was linked to the Canadian provinces of Quebec and Ontario, respectively,⁷ although the link with the latter was severed in the same year it came into effect, following a change of government in the province.⁸

In terms of sectoral coverage, the cap-and-trade program was phased in over time.⁹ When the system became operational in January 2013, it covered the electricity sector and large industrial sources. Since January 2015, the system also covers the transportation sector by extending the compliance obligation to distributors of fuels. In 2015, the program levied

² US, California Office of the Governor, *Executive Order S-3-05* (1 June 2005); "Gov. Schwarzenegger Announces Targets to Reduce GHG Emissions", *E&E News* (2 June 2005), online: E&E News <<https://www.eenews.net/>>.

³ US, AB 32, *An Act to Add Division 25.5 (Commencing with Section 38500) to the Health and Safety Code, Relating to Air Pollution*, 2005-06, Reg Sess, Cal, 2006 (enacted); "Gov. Schwarzenegger Signs GHG Bill", *E&E News* (27 September 2006), online: E&E News <<https://www.eenews.net/>>.

⁴ US, California Air Resources Board, *Climate Change Scoping Plan: A Framework for Change* (December 2008), online: ARB <<https://www.arb.ca.gov/>> (retrieved 7 May 2018) [ARB, "Scoping Plan"]; "Calif. Air Board Approves Greenhouse Gas Plan", *E&E News* (11 December 2008), online: E&E News <<https://www.eenews.net/>>.

⁵ Debra Kahn, "California Reveals Terms of Nation's First Economywide CO2 Cap-and-Trade System", *E&E News* (1 November 2010), online: E&E News <<https://www.eenews.net/>>.

⁶ US, Cal Code Regs tit 17 §§ 95801-96022 (2011); Felicity Barringer, "California Adopts Limits on Greenhouse Gases", *The New York Times* (20 October 2011), online: The New York Times <<http://www.nytimes.com/>>.

⁷ Nathanael Massey, "Calif., Quebec Sign Agreement to Merge Cap-and-Trade Programs", *E&E News* (2 October 2013), online: E&E News <<https://www.eenews.net/>>; Debra Kahn, "Brown Announces Formal Carbon Trading with Ontario", *E&E News* (25 September 2017), online: E&E News <<https://www.eenews.net/>>.

⁸ Fulfilling one of his election promises, Premier Doug Ford dismantled Ontario's cap-and-trade program shortly after his election in June 2018; see Danya Hajjaji, "Canada's Ontario Government Scraps Cap-and-Trade Program", *Reuters* (3 July 2018), online: Reuters <<https://www.reuters.com/>>; see also Shawn McCarthy, "PCs Will End Ontario Cap-and-Trade Program, Ford Vows", *The Globe and Mail* (15 June 2018), online: The Globe and Mail <<https://www.theglobeandmail.com/>>.

⁹ See US, Cal Code Regs tit 17 §§ 95840, 95851 (2011).

its compliance obligation on some 450 entities in California.¹⁰ In that year, the system's cap was 395 Mt CO₂-eq and it is set to decline to 334 Mt CO₂-eq in 2020.¹¹

In the electricity sector, California's cap-and-trade program places the point of regulation on the first deliverer of electricity.¹² There are two kinds of entities covered under that definition, namely operators of electricity generators located in California and electricity importers.¹³ Importantly, this means that compliance entities are required to surrender emission allowances not only for electricity that is generated in-state but also for electricity that is imported from out-of-state and consumed in California. Therefore, California applies a form of BCA on imports of electricity in its cap-and-trade program.¹⁴ It should be noted that, while the ARB adopted the BCA as part of its cap-and-trade program in 2011, the general requirement to reduce emissions from imported electricity was already included in AB 32, albeit without specifying the means to achieve that end.¹⁵

California is part of the Western Interconnection, which is an electricity grid that extends from Canada to Mexico and includes the Canadian provinces of British Columbia and Alberta, the northern portion of the Mexican state of Baja California, and all or parts of the 14 US states located in between.¹⁶ In fact, California imports a sizeable share of the electricity consumed in the state. For instance, in 2005, the state imported 22% (62 TWh) of its electricity supply, a share that increased to 34% (99 TWh) in 2015.¹⁷ What is more, those imports account for a significant share of emissions from the state's electricity consumption.

¹⁰ US, California Air Resources Board, *Overview of ARB Emissions Trading Program* (9 February 2015), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 March 2018) at 1.

¹¹ US, Cal Code Regs tit 17 § 95841 (2011).

¹² US, Cal Code Regs tit 17 § 95811(b) (2011). The point of regulation is different for other sectors of the cap-and-trade program, such as for industrial installations; see chapter 6.

¹³ US, Cal Code Regs tit 17 § 95802(147) (2011).

¹⁴ For more information on commonalities and differences of this measure compared to other BCAs, see part 1, above.

¹⁵ See US, Cal Health and Safety Code §§ 38562(a), 38505(m) (2006). Note that this requirement specifically concerned electricity but did not mention any other imports.

¹⁶ Western Electricity Coordinating Council, "2016 State of the Interconnection" (2016) at ii.

¹⁷ US, California Energy Commission, "Total System Electric Generation", online: CEC <<http://www.energy.ca.gov/>> (retrieved 9 April 2018) [CEC, "System Generation"].

Electricity imports accounted for 58% (63 Mt CO₂-eq) and 40% (34 Mt CO₂-eq) of emissions from electricity generators in 2005 and 2015, respectively.¹⁸

Regarding allocation, utilities in the electricity sector receive free allowances. Importantly, they must use these allowances exclusively for the benefit of electricity ratepayers, including the proceeds from selling them at auctions.¹⁹ This is to protect ratepayers from sudden increases in their electricity bills.²⁰ In order to offset higher electricity rates, utilities apply a “climate credit” to their customers’ bills twice per year.²¹ The total number of free allowances allocated to the electricity sector was 96 Mt CO₂-eq in 2013 and declines linearly to 83 Mt CO₂-eq by 2020.²² These figures are based on emissions in the electricity sector in 2008, with the number of free allowances in 2020 being equivalent to 85% of those emissions.²³

Although imports of electricity have been included from the start of the system, policy-makers have been struggling to prevent market participants from circumventing the compliance obligation for imported electricity through a prohibited practice known as resource shuffling. Resource shuffling is a form of carbon leakage that results in the false appearance of emissions reductions. For example, a California utility that imports electricity from out-of-state could replace imports from a coal-fired generator with imports from a renewables source; while the coal-fired plant continues to produce electricity for a different

¹⁸ US, California Air Resources Board, *2017 Edition California Greenhouse Gas Inventory for 2000-2015 – By Category as Defined in the 2008 Scoping Plan* (6 June 2017), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 April 2018). Because some of these imports come from unspecified sources, which are based on a default emissions factor rather than facility-specific emissions, these figures should be understood as reasonable estimates. For more information on electricity from unspecified sources, see section 5.6.1, below.

¹⁹ See US, Cal Code Regs tit 17 § 95892 (2011).

²⁰ ARB, “ISoR”, *supra* note 1 at II-28.

²¹ See US, California Air Resources Board, News Release, 14-25, “CPUC and ARB Announce the California Climate Credit, Cutting Electricity Bills for Millions of Households” (31 March 2014), online: ARB <<https://www.arb.ca.gov/>>; Debra Kahn, “State to Distribute Cap-and-Trade Proceeds Back to Residents”, *E&E News* (31 March 2014), online: E&E News <<https://www.eenews.net/>>; Anne C Mulkern, “Promotion of Cap-and-Trade Money for Residents Downplays Looming Higher Electricity Rates”, *E&E News* (1 April 2014), online: E&E News <<https://www.eenews.net/>>.

²² See US, Cal Code Regs tit 17 § 95870(d)(1) (2011).

²³ See US, California Air Resources Board, *Staff Proposal for Allocating Allowances to the Electric Sector* (July 2011), online: ARB <<https://www.arb.ca.gov/>> (retrieved 17 April 2018) at 1. The 2008 data include emissions from both in-state generation and imports.

customer, the California utility avoids the compliance obligation for imported electricity and records a reduction in emissions from imports.²⁴ In order to ban such circumvention and ensure the effectiveness of the BCA in achieving emissions reductions, the ARB included a prohibition of resource shuffling in the initial program design and required importers of electricity to attest that they did not engage in this practice.²⁵

However, in September 2012, merely a few months before the compliance obligation would begin to take effect, the ARB suspended the enforcement of the attestation requirement.²⁶ One month later, the ARB directed its staff to define market behaviours that the ARB would not consider resource shuffling.²⁷ In April 2014, just over one month before the first deadline to submit attestations on resource shuffling, the ARB amended the cap-and-trade program to remove the attestation requirement and further weakened the BCA by including a list of exemptions that had previously been prohibited as resource shuffling but were henceforth deemed legal.²⁸ Existing research indicates that the exemptions are likely to cause significant carbon leakage.²⁹ Therefore, although policy-makers adopted the BCA on imports of electricity, they subsequently amended it so that, in fact, the BCA never became effective as originally intended but only in a weakened form that is likely to lead to significant carbon leakage.

More recently, policy-makers have focused on the implementation of the cap-and-trade program beyond 2020. Governor Jerry Brown signed Senate Bill (SB) 32 in September 2016,

²⁴ For a detailed discussion of resource shuffling and its environmental impact, see section 5.6.2, below.

²⁵ US, Cal Code Regs tit 17 §§ 95802(a)(251), 95852(b)(2) (2011).

²⁶ US, California Air Resources Board, *Resolution 12-33* (12 September 2012) [ARB, *Resolution 12-33*]; Debra Kahn, “Calif. Will Relax Its Regulation of ‘Resource Shuffling’ in Cap-and-Trade Program”, *E&E News* (21 August 2012), online: E&E News <<https://www.eenews.net/>> [Kahn, “Calif. Will Relax”].

²⁷ US, California Air Resources Board, *Resolution 12-51* (18 October 2012) [ARB, *Resolution 12-51*]; Debra Kahn, “Federal Energy Regulators Still Worried About Design of Calif. Cap-and-Trade System”, *E&E News* (22 October 2012), online: E&E News <<https://www.eenews.net/>> [Kahn, “Regulators Still Worried”].

²⁸ US, California Air Resources Board, *Resolution 14-4* (25 April 2014) [ARB, *Resolution 14-4*]; Debra Kahn, “Calif. Extends Free Allowances for Oil and Food Companies, Allows Coal Mines to Get Credits”, *E&E News* (28 April 2014), online: E&E News <<https://www.eenews.net/>> [Kahn, “Free Allowances”].

²⁹ See section 5.6.2.4, below.

which set an emission reduction target of 40% below 1990 levels by 2030,³⁰ and in July 2017 he signed AB 398, which extended the cap-and-trade program through 2030.³¹ In December 2017, the ARB adopted an updated scoping plan for achieving the 2030 target.³²

It should be noted that the political discourse on BCAs in the electricity sector, by and large, focused on imports. Indeed, a BCA on exports of electricity was largely absent in the discussions. Although there is an exemption from the compliance obligation for emissions associated with exported electricity, the scope of this provision is very narrow. The exemption applies to electricity wheeled through California, i.e. electricity that is generated out-of-state and passes through the state before being consumed out-of-state.³³ However, the exemption only applies to qualified exports, which concern electricity that is imported and exported within the same hour and by the same importer.³⁴ Moreover, this limited exemption cannot be used to obtain a rebate for electricity exports.³⁵

There are several explanations for policy-makers' predominant focus on a BCA on imports of electricity. Given that California is a substantial net importer of electricity, exports of electricity are limited.³⁶ According to the California Energy Commission,

³⁰ US, SB 32, *An Act to Add Section 38566 to the Health and Safety Code, Relating to Greenhouse Gases*, 2015-16, Reg Sess, Cal, 2016 (enacted); Debra Kahn, "Brown to Sign Landmark Climate Bill Today", *E&E News* (8 September 2016), online: E&E News <<https://www.eenews.net/>>.

³¹ US, AB 398, *California Global Warming Solutions Act of 2006: Market-Based Compliance Mechanisms: Fire Prevention Fees: Sales and Use Tax Manufacturing Exemption*, 2017-18, Reg Sess, Cal, 2017 (enacted); Debra Kahn, "Cap-and-Trade Signing Features Schwarzenegger, Back-Patting", *E&E News* (26 July 2017), online: E&E News <<https://www.eenews.net/>>.

³² US, California Air Resources Board, *California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target* (November 2017), online: ARB <<https://www.arb.ca.gov/>> (retrieved 18 December 2017); Debra Kahn, "Ambitious Climate Plans Make 'Plenty of Work for Everybody'", *E&E News* (15 December 2017), online: E&E News <<https://www.eenews.net/>>.

³³ US, Cal Code Regs tit 17 § 95102(a) (2010); see also US, California Air Resources Board, *Cap-and-Trade Program: Electricity Workshop* (4 May 2012), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 March 2018) at 26 [ARB, "Electricity Workshop"]; Thomas Alcorn, "The Constitutionality of California's Cap-and-Trade Program and Recommendations for Design of Future State Programs" (2013) 3:1 *Michigan Journal of Environmental & Administrative Law* 87 at 119-120.

³⁴ US, Cal Code Regs tit 17 § 95802(307) (2011). Emissions associated with qualified exports do not incur a compliance obligation; see US, Cal Code Regs tit 17 §§ 95852(b)(1)(B), §95852(b)(5) (2011).

³⁵ See US, Cal Code Regs tit 17 § 95802(307) (2011).

³⁶ See CEC, "System Generation", *supra* note 17. Also interviews of a representative of the environmental community (16 November 2017) and Timothy Profeta, Director, Nicholas Institute for Environmental Policy Solutions, Duke University (3 November 2017).

“California occasionally exports a small amount of electricity, but nearly all of the transactions are imports” and “the amount [of exported electricity] is small enough to ignore” when accounting for emissions.³⁷ Furthermore, two interviewees suspected that policy-makers sought to maximize the environmental effectiveness of the cap-and-trade program by covering emissions associated with electricity generation regardless of whether that electricity would be consumed in- or out-of-state.³⁸ Indeed, the ARB indicated it opposed a BCA on exports of electricity because it “would increase [greenhouse gas] emissions within the state [through] a payment of allowances to exporters of fossil electricity.”³⁹

In summary, AB 32 directed the ARB in 2006 to adopt policies to achieve the state’s 2020 emission reduction target. Reflecting the fact that imports of electricity account for a significant share of emissions from California’s electricity consumption, AB 32 included the general requirement to reduce emissions from imported electricity. In 2011, the ARB adopted California’s cap-and-trade program, which included a BCA on imports of electricity. However, the ARB subsequently adopted a list of exemptions that weakened the BCA and are likely to cause significant carbon leakage. As a result, the BCA only became effective in a weakened form and not as originally intended. The following parts examine the reasons behind these policy outcomes, specifically the adoption of the BCA and its subsequent weakening.

5.3 Concerns about WTO Law or the US Dormant Commerce Clause

This part examines whether there were any concerns among policy-makers in California with regards to WTO law (section 5.3.1) or the DCC (section 5.3.2) that had to be overcome when introducing the BCA on imports of electricity or whether any such considerations led to the subsequent adoption of the exemptions that weakened the BCA. As will become

³⁷ US, California Energy Commission, *Revised Methodology to Estimate the Generation Resource Mix of California Electricity Imports: Update to the May 2006 Staff Paper* (CEC-700-2007-007) (2007) at B-1.

³⁸ Interviews of Jan Smutny-Jones, Executive Director, Independent Energy Producers Association (20 October 2017) and a cap-and-trade market expert (29 November 2017).

³⁹ ARB, “FSOR”, *supra* note 1 at 601.

evident from the following discussion, neither WTO law nor the DCC can explain these policy outcomes.

5.3.1 Concerns about WTO Law

Under WTO rules, electricity is considered a good and is therefore subject to the GATT.⁴⁰ Consequently, WTO law becomes relevant where California's cap-and-trade program covers imports of electricity from other WTO members, namely from Canada and Mexico.⁴¹

The amount of electricity consumed in California that is supplied by Canada and Mexico is, in fact, negligible. No more than some 0.5% (or 4 million kWh) of electricity demand from the US portion of the Western Interconnection was met by electricity from Canada and Mexico in 2016.⁴² However, even though the amount of electricity in California supplied by Canada and Mexico is marginal, WTO law may become relevant because electricity imports are non-zero.

As described in chapter 2, a substantial body of literature exists that addresses the compliance of BCAs with the rules of the WTO.⁴³ Although designing BCAs to be WTO-compliant may not be a trivial exercise, leading experts in this area of law indicate that BCAs can indeed be designed to be WTO-compliant. Furthermore, even if BCAs were to be found illegal by a WTO panel, the legal consequences are relatively limited.

No publicly available government documents were identified that explicitly address WTO law in the context of the BCA on imports of electricity. However, one ARB document

⁴⁰ *Canada – Measures Relating to the Feed-in Tariff Program* (2012), WTO Doc WT/DS426/R (Panel Report) at 32, n 46. Also Cottier et al, *supra* note 1 at 28.

⁴¹ See Clayton Munnings et al, "Pricing Carbon Consumption: A Review of an Emerging Trend" (2016) Resources for the Future, Discussion Paper 16-49 at 28, who note that policies like California's BCA on imports of electricity "must be carefully designed to comply with relevant laws (e.g., the [Dormant Commerce Clause] in California or the WTO if trade occurs between countries), since they effectively regulate imports."

⁴² See Cara Marcy, "California Imports About a Quarter of Its Electricity on Average" (3 March 2017), online: US Energy Information Administration <<https://www.eia.gov/>>.

⁴³ See section 2.3.1, above.

contains an implicit statement on that question. Explaining the design of its cap-and-trade program, the ARB noted:

Staff chose not to extend the first deliverer approach to include entities that import non-electricity goods into California from out-of-state because of potentially significant technical and legal challenges. (...) The application of border adjustments to interstate and international trade would also face legal scrutiny under the Commerce Clause and World Trade Organization principles.⁴⁴

Having adopted a BCA on imports of electricity, this statement implies that the ARB found WTO law to be no obstacle for the introduction of that BCA, which has been confirmed through interview evidence.⁴⁵ Policy-makers carefully considered WTO law when designing the BCA on imports of electricity.⁴⁶ In fact, it emerged through interviews that the ARB discussed the compliance of its cap-and-trade program with WTO law both internally and with stakeholders, produced internal documents assessing that question, and concluded that WTO law did not pose an insurmountable obstacle. Furthermore, seeking to avoid any involvement of the US federal government, which is a WTO member, the ARB was keen not to violate WTO law.⁴⁷

To date, no WTO case has been brought challenging the BCA on imports of electricity. It should be noted that Powerex, the trading subsidiary of British Columbia's utility BC Hydro, claimed in October 2011 that the ARB violated the national treatment principle of the North American Free Trade Agreement by discriminating against electricity imported from BC Hydro.⁴⁸ However, the dispute appears to have been settled in December 2012 when the ARB designated electricity imported from BC Hydro as "specified" with an emissions factor close to zero.⁴⁹ Although this claim is not directly related to WTO law, the principle of

⁴⁴ ARB, "ISoR", *supra* note 1 at IV-8.

⁴⁵ By contrast, for a case study of sectors other than electricity in California's cap-and-trade program, see chapter 6.

⁴⁶ Interview of a cap-and-trade market expert (29 November 2017).

⁴⁷ The unease about a potential involvement of the US federal government was likely amplified with the advent of the Trump administration but already existed under President Obama.

⁴⁸ Gordon Hamilton, "BC Hydro Plays NAFTA Card in Bid to Win Green Status in California", *Vancouver Sun* (21 October 2011) C1.

⁴⁹ "BPA, Powerex Obtain California Low-Emissions Status", *Argus Media* (17 December 2012), online: Argus Media <<https://www.argusmedia.com/>>.

national treatment is also codified in the GATT. As with WTO law, a case was never brought.

In summary, ARB officials examined the issue of WTO law and concluded that it did not present an obstacle to the introduction of the BCA on imports of electricity. Furthermore, there is no evidence to suggest that concerns about WTO law played any role in the subsequent weakening of that BCA. As a result, concerns about WTO law cannot explain these policy outcomes.

5.3.2 Concerns about the US Dormant Commerce Clause

The DCC is a constitutional principle that is not explicitly mentioned in the US Constitution but exists as an “unwritten logical extension” thereof.⁵⁰ Under the DCC, US states are not allowed to discriminate against citizens of other US states.⁵¹ In essence, the DCC seeks to prevent US states from enacting protectionist policies vis-à-vis other US states.⁵²

The DCC becomes relevant when California’s cap-and-trade program covers imports of electricity from other US states.⁵³ As indicated above, California imports a sizeable share of the electricity consumed in the state (34% in 2015), and electricity imports from Canada and Mexico are negligible.⁵⁴ Consequently, almost all of California’s electricity imports come from other US states that are also part of the Western Interconnection.⁵⁵ Not surprisingly,

⁵⁰ Erwin Chemerinsky et al, “California, Climate Change, and the Constitution” (2007) 37:9 Environmental Law Reporter 10653 at 10656.

⁵¹ *Ibid.*

⁵² See *ibid.*

⁵³ See Munnings et al, *supra* note 41 at 28, who note that policies like California’s BCA on imports of electricity “must be carefully designed to comply with relevant laws (e.g., the [Dormant Commerce Clause] in California or the WTO if trade occurs between countries), since they effectively regulate imports.”

⁵⁴ See part 5.2 and section 5.3.1, above.

⁵⁵ Specifically, this includes all of Arizona, Idaho, Nevada, Oregon, Utah, Washington; most of Colorado, Montana, New Mexico, Wyoming; and very small parts of Nebraska, South Dakota, and Texas. See Amy Sopinka & Lawrence Pitt, “Trends in the Western Electricity Coordinating Council: Retrospect and Prospect” (2013) Pacific Institute for Climate Solutions at 3.

therefore, the question of DCC-compliance appears to bear higher relevance for imports of electricity than concerns about WTO law.⁵⁶

A body of academic literature addresses the compliance of state-level climate policy with the DCC. While the literature offers no measure of the level of effort required and the legality ultimately depends on the specific policy design, it appears that the DCC-compliant design of BCAs is possible. In general, MacDougald argues that, to avoid any conflict with the DCC, climate policy should be put in place at the federal level rather than at the state level.⁵⁷ Alcorn, however, argues that state-level cap-and-trade programs can be designed to survive a DCC challenge.⁵⁸ Similarly, Driesen holds that the DCC should not invalidate policies that subject out-of-state producers to the same rules as in-state producers.⁵⁹

Some studies focus specifically on the Regional Greenhouse Gas Initiative's (RGGI) cap-and-trade program and show that a BCA on imports of electricity can be designed to be DCC-compliant. Bolster examines the DCC-compliance of a potential inclusion of electricity imports under RGGI and proposes a policy design that is likely compliant with the DCC.⁶⁰ Furthermore, RGGI produced a report indicating that an inclusion of electricity imports could be designed in a DCC-compliant manner.⁶¹ Funk examines the design options raised in RGGI's report in more detail and also finds that they are likely to be DCC-compliant.⁶² Going further, Parlar, Babakitis, and Welton find that a BCA on imports of electricity under

⁵⁶ Interview of a representative of the environmental community (16 November 2017).

⁵⁷ Joseph Allan MacDougald, "Why Climate Law Must Be Federal: The Clash Between Commerce Clause Jurisprudence and State Greenhouse Gas Trading Systems" (2008) 40:5 Connecticut Law Review 1431 at 1450-1451.

⁵⁸ Alcorn, *supra* note 33 at 87.

⁵⁹ David Driesen, "Must the States Discriminate Against Their Own Producers Under the Dormant Commerce Clause?" (2016) 54 Houston Law Review 1 at 57.

⁶⁰ Heddy Bolster, "The Commerce Clause Meets Environmental Protection: The Compensatory Tax Doctrine As a Defense of Potential Regional Carbon Dioxide Regulation" (2006) 47:4 Boston College Law Review 737.

⁶¹ Regional Greenhouse Gas Initiative, "Potential Emissions Leakage and the Regional Greenhouse Gas Initiative (RGGI)" (2008) at 38.

⁶² William Funk, "Constitutional Implications of Regional CO₂ Cap-and-Trade Programs: The Northeast Regional Greenhouse Gas Initiative as a Case in Point" (2009) 27:2 UCLA Journal of Environmental Law and Policy 353 at 364-366.

RGGI “would likely be ruled constitutional,” even if imports were to be treated “slightly differently” for monitoring purposes than electricity generated in-state.⁶³

Other studies specifically examine the DCC-compliance of California’s BCA on imports of electricity and indicate that the measure is likely to be DCC-compliant. Chemerinsky et al. show how California can design a cap-and-trade program that includes a BCA on imports of electricity and complies with the DCC.⁶⁴ Alcorn proposes refinements to California’s BCA on imports of electricity to reduce the odds of a successful legal challenge.⁶⁵ Drawing on Parlar, Babakitis, and Welton, Munnings et al. note that California’s BCA on imports of electricity “is carefully crafted to comply with the DCC” and thus consider it unlikely that a challenge would be successful.⁶⁶

In addition to the academic literature, government documents and evidence from interviews also indicate that California’s BCA on imports of electricity is likely to be DCC-compliant. The California Public Utilities Commission (PUC), which offered detailed recommendations to the ARB on the design of the cap-and-trade program, recommended including a BCA on imports of electricity and examined the DCC-compliance of so doing. The PUC concluded that such a BCA does not violate the DCC.⁶⁷ It elaborated:

The regulations we are proposing are facially neutral and do not have a discriminatory purpose or effect. In other words, a deliverer point of regulation does not on its face, or in effect, discriminate against interstate commerce in favor of intrastate commerce, nor is there any purpose to favor intrastate commerce over interstate commerce. A deliverer point of regulation treats all electricity delivered to the California grid the same, whether that electricity is generated in California or elsewhere. In either case, the deliverer will have to surrender (...) allowances based on the amount of (...) emissions associated with that electricity. (...) [Furthermore, we find] that any burdens on interstate commerce (...) are incidental in relationship to the local benefits to California. [Therefore], we conclude that using a deliverer

⁶³ Erin Parlar, Michael Babakitis & Shelley Welton, “Legal Issues in Regulating Imports in State and Regional Cap and Trade Programs” (2012) Columbia University at 3.

⁶⁴ Chemerinsky et al, *supra* note 50.

⁶⁵ Alcorn, *supra* note 33.

⁶⁶ Munnings et al, *supra* note 41 at 20.

⁶⁷ US, California Public Utilities Commission, *Interim Opinion on Greenhouse Gas Regulatory Strategies* (08-03-018) (2008) at 87 [Public Utilities Commission].

point of regulation for the electricity sector does not regulate extraterritorially in violation of the Commerce Clause.⁶⁸

Further, as with WTO law,⁶⁹ the ARB stated implicitly that it found the DCC to be no obstacle for the introduction of a BCA on imports of electricity.⁷⁰ It emerged also through interviews that the ARB carefully considered the DCC, designed the BCA on imports of electricity to be DCC-compliant, and that the ARB felt confident the BCA would withstand a potential legal challenge.⁷¹ Likewise, a high-ranking official of the California Environmental Protection Agency noted: “[W]e think we are taking a prudent approach.”⁷²

No case has been brought challenging the BCA under the DCC to date.⁷³ However, in a challenge of California’s low-carbon fuel standard (LCFS), which is a policy outside of California’s cap-and-trade program that similarly imposes a compliance obligation on imports of refined fuels, that policy was ultimately found to be DCC-compliant.⁷⁴ While the LCFS was initially found to violate the DCC by a lower court in December 2011, a higher court reversed that decision in September 2013. The evidence found in this study does not support the conclusion that this case led to the adoption of the exemptions that weakened the BCA.

In this case, the appellate court ruled that the LCFS was not facially discriminatory and that California did not regulate extraterritorially in violation of the DCC.⁷⁵ The court held that the LCFS did not regulate fuels based on their origin but carbon intensity and indicated that life-cycle analysis constitutes a non-discriminatory method to account for differences in emissions intensity.⁷⁶ The court also confirmed the validity of applying default values of

⁶⁸ *Ibid* at 87, 89.

⁶⁹ See section 5.3.1, above.

⁷⁰ ARB, “ISoR”, *supra* note 1 at IV-8.

⁷¹ Interview of a cap-and-trade market expert (29 November 2017).

⁷² Evan Lehmann, “Climate Clash in Midwest Could Trigger More Border Challenges”, *E&E News* (12 January 2010), online: E&E News <<https://www.eenews.net/>>.

⁷³ Munnings et al, *supra* note 41 at 20; interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

⁷⁴ *Rocky Mountain Farmers Union v Corey*, 730 F.3d 1070 (9th Cir. 2013).

⁷⁵ *Ibid* at 1078.

⁷⁶ *Ibid* at 1089-1090, 1093.

carbon intensity and allowing compliance entities to seek individualized assessment of their emissions intensity in an effort to prove that they performed better than the default factor.⁷⁷ This policy design of using both default values and allowing individualized assessments was found to be non-discriminatory because it applies to both in-state and out-of-state compliance entities and does not uniformly benefit California producers.⁷⁸ In fact, the court noted that assessing the carbon intensity of each individual producer instead of using a default factor would “increase the costs of compliance with California’s system and render it cumbersome.”⁷⁹ Notably, the court also emphasized “the grave need [in this area of policy-making] for state experimentation” and highlighted California’s leadership role in regulating air quality, particularly in light of the state’s vulnerability to impacts from climate change.⁸⁰ An interviewee who was involved in litigating this case characterized the judgment as a “resounding victory for the state [of California]” and explained:

Because [this case] went strongly for the government, it set a very strong precedent that said including out-of-state greenhouse gas emissions in a fair and scientifically accurate and neutral way is an acceptable process. It is very difficult to say, under that standard, that asking for the emissions profile of electricity imports and including that in the cap-and-trade system is any different. There is no difference between life-cycle assessment for fuels and an even simpler life-cycle assessment for electricity.⁸¹

Therefore, the LCFS case set a precedent that increases the likelihood of the BCA on imports of electricity under California’s cap-and-trade program being upheld in a potential future challenge.

In fact, there are indications that opponents of the BCA might have alleged concerns about the DCC to reinforce their opposition. For instance, the Los Angeles Department of Water and Power (LADWP), a major municipal utility that imported a significant amount of electricity generated from coal, claimed that provisions to prevent resource shuffling would

⁷⁷ See *ibid* at 1093-1094.

⁷⁸ *Ibid* at 1094.

⁷⁹ *Ibid*; see also *ibid* at 1097.

⁸⁰ *Ibid*; see also *ibid* at 1107.

⁸¹ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

violate the DCC.⁸² This view, however, is neither supported by the academic literature nor by policy-makers.

To summarize, both academic literature and government documents suggest that the BCA on imports of electricity is likely to be DCC-compliant. In addition, ARB officials carefully considered the question of DCC-compliance when designing the BCA and they were confident that it would withstand a legal challenge. Therefore, the DCC did not present an obstacle to the introduction of the BCA on imports of electricity. Furthermore, no evidence was found to suggest that concerns about legal challenges under the DCC led policy-makers to adopt the exemptions that weakened the BCA on imports of electricity. However, there are indications that some opponents of the BCA might have alleged concerns about the DCC to reinforce their opposition, despite legal experts' assertions and other evidence to the contrary. As a result, concerns about the DCC cannot explain these policy outcomes.

5.4 Concerns about Repercussions for International or US State-Level Relations

This part examines whether concerns about repercussions for international or US state-level relations had to be overcome when introducing the BCA on imports of electricity or whether any such concerns led to the subsequent adoption of the exemptions that weakened the BCA. The discussion first concentrates on a potential fear of trade war and retaliation (section 5.4.1) before turning to a potential fear of hampering international or US state-level climate efforts (section 5.4.2). The following explanations show that no such fears existed among policy-makers in California. In other words, there were no concerns about repercussions for international or US state-level relations that could explain the policy outcomes.

⁸² See Public Utilities Commission, *supra* note 67 at 89, n 30.

5.4.1 Fear of Trade War and Retaliation

This section explains that there was, in fact, no opposition from the governments of other countries or US states to California's BCA on imports of electricity (section 5.4.1.1). This section further considers the reasons for the absence of any opposition (section 5.4.1.2).

5.4.1.1 No Opposition from Other Governments

There is no evidence that any governments of other countries or US states exercised opposition to California's BCA on imports of electricity. When asked about this, none of the interviewees in this case study recalled any instance of a government from another country or US state lobbying against the BCA. There are also no indications that any such governments lobbied the federal US government regarding California's BCA.

Although two disputes took place that involved entities from other countries, namely Mexico and Canada, the governments of these countries did not intervene in those disputes. In January 2016, it emerged that Mexican state-owned utility Comisión Federal de Electricidad failed to report emissions amounting to some 470 kt CO₂-eq and surrender allowances for these emissions to the ARB in a timely manner.⁸³ As a consequence of this non-compliance, Comisión Federal de Electricidad faced a penalty of having to surrender four times the number of its emissions, which amounted to some 1.9m allowances worth over \$20m.⁸⁴ Comisión Federal de Electricidad subsequently complied and paid the penalty.⁸⁵ Importantly, according to an interviewee who was privy to this dispute, Mexican government officials did not intervene in this dispute.⁸⁶ Likewise, there is no indication that Canadian

⁸³ Dan X McGraw, "US: CFE Likely Reported 2013 Emissions Late to ARB", *Independent Chemical Information Service* (5 January 2016), online: ICIS <<https://www.icis.com/>>.

⁸⁴ *Ibid.* The market value of these allowances is based on the average of the current auction settlement price during 2013 and 2014; see US, California Air Resources Board, *California Cap-and-Trade Program: Summary of Joint Auction Settlement Prices and Results* (May 2017), online: ARB <<https://www.arb.ca.gov/>> (retrieved 8 June 2017).

⁸⁵ "CP Daily: Tuesday April 5, 2016", *Carbon Pulse* (5 April 2016), online: Carbon Pulse <<http://carbon-pulse.com/>>.

⁸⁶ Interview of an industry consultant (19 October 2017).

government officials intervened in the dispute between British Columbia's Powerex and the ARB that occurred between late 2011 and December 2012.⁸⁷

Equally, the governments of other US states did not exercise any opposition to California's BCA on imports of electricity. In fact, according to one interviewee, disagreements between the ARB and electricity generators located in other US states were not taken to the political level but addressed between those parties directly.⁸⁸

While there was no opposition from other US states to California's BCA on imports of electricity, an escalating dispute between two Canadian provinces offers a recent example of a disagreement between subnational jurisdictions that involves retaliation and rhetoric of trade war. In February 2018, in an effort to prod the government of British Columbia to cease its opposition to a pipeline to be built from Alberta to the coast of British Columbia, the government of Alberta suspended talks on electricity purchases from British Columbia worth some C\$500m per year.⁸⁹ Only days later the Alberta government moved to stop imports of wine from British Columbia worth some C\$70m per year.⁹⁰ In March 2018, the government of Alberta threatened to cut off British Columbia from Alberta's oil,⁹¹ which led some industry stakeholders to "fear escalating trade war."⁹² Two months later, the Alberta government passed legislation that would enable it to restrict the export of fossil fuels to British Columbia.⁹³ This dispute illustrates that disagreements between subnational

⁸⁷ See section 5.3.1, above.

⁸⁸ Interview of a representative of the environmental community (16 November 2017).

⁸⁹ Kelly Cryderman, Shawn McCarthy & Mike Hager, "Alberta Suspends Electricity Talks With B.C. Over Pipeline Fight", *The Globe and Mail* (1 February 2018), online: The Globe and Mail <<https://www.theglobeandmail.com/>>.

⁹⁰ Carrie Tait & Justine Hunter, "Alberta Moves to Block B.C.'s Wine Imports in Dispute Over Trans Mountain Pipeline Expansion", *The Globe and Mail* (6 February 2018), online: The Globe and Mail <<https://www.theglobeandmail.com/>>.

⁹¹ Kelly Cryderman, Carrie Tait & Mike Hager, "Notley Threatens to Turn Off Oil Taps in Dispute With B.C. Over Trans Mountain Pipeline", *The Globe and Mail* (8 March 2018), online: The Globe and Mail <<https://www.theglobeandmail.com/>>.

⁹² Drew Anderson, "Rachel Notley Doubles Down on Threat to Cut B.C. Oil Shipments", *CBC News* (9 March 2018), online: CBC News <<http://www.cbc.ca/>>.

⁹³ Justine Hunter & Kelly Cryderman, "Alberta Passes Law That Would Punish B.C. Over Pipeline Fight", *The Globe and Mail* (16 May 2018), online: The Globe and Mail <<https://www.theglobeandmail.com/>>.

jurisdictions can indeed escalate and may lead to trade war and retaliation. In California, however, this has not been the case.

5.4.1.2 Reasons for Absence of Opposition

Several factors may explain the striking fact that no government of another country or US state exercised opposition to California's BCA on imports of electricity. Due to California's import-oriented economy, the state's vulnerability to retaliatory measures from other countries is limited. Statistics on international trade show that California's economy is highly import-oriented. This means that California's economy is much less dependent on exports to foreign markets than an export-oriented economy would be. This, in turn, makes California less vulnerable to retaliation because the state's exports are the trade flows that other countries would target when retaliating.

Table 4 shows that California had a deficit of international trade in goods of some \$246bn in 2016, with exports from markets outside the US worth some \$164bn and imports of around \$410bn.⁹⁴ Also with respect to Mexico and Canada, the state's trade balance is negative, making California's economy relatively immune to international retaliation.

Table 4: International trade in goods of California in 2016

	World	Mexico	Canada
Exports to	164	25	16
Imports from	410	46	28
Balance of trade	-246	-21	-12

Source: US Census Bureau.⁹⁵ Values in billions of US dollars.

⁹⁴ Taking into account the state's services exports of \$136bn in the same year, California still had a trade deficit of more than \$110bn. See The Coalition of Services Industries, *California Services Exports* (2018), online: The Coalition of Services Industries <<https://servicescoalition.org/>> (retrieved 14 February 2019). Note that the figure on services exports is an estimate. Government statistics on trade in services are not available on a US state basis.

⁹⁵ Data from US, Census Bureau, "State Exports from California", online: USCB <<https://www.census.gov/>> (retrieved 3 May 2018); US, Census Bureau, "State Imports for California", online: USCB <<https://www.census.gov/>> (retrieved 3 May 2018); balance of trade is author's calculation.

Furthermore, the political influence and economic power of the US as a whole are likely to deter other countries from entering into a dispute with one of the country's states. Because imports of electricity from Canada and Mexico to California are minimal,⁹⁶ the governments of these countries are particularly unlikely to intervene.

Similarly, with respect to other US states, California's economic significance within the US is likely to play a role in preventing other states from intervening. Although California imports a significant amount of electricity from other US states that are also part of the Western Interconnection,⁹⁷ with a GDP of some \$2.6tn in 2016, California's economy is the largest among all US states.⁹⁸ The next largest economy of a US state whose entire grid is part of the Western Interconnection is that of Washington. However, with a GDP of close to \$477m, less than a fifth of the size of California's economy, Washington's economy pales in comparison.⁹⁹ Therefore, California's market power is likely to deter the governments of other US states from opposing the state's BCA on imports of electricity. In contrast to statistics on international trade, data on trade between US states, aside from interstate trade of electricity, is not available.¹⁰⁰

Perhaps not surprisingly, neither policy-makers nor stakeholders in California showed any fear of opposition from other countries or US states. Indeed, Mexico's Comisión Federal de Electricidad and Canada's Powerex are included in the cap-and-trade program and ARB officials were understood "not [to be] shy about that stuff."¹⁰¹ Likewise, when asked whether policy-makers in California were concerned about potential trade war or retaliation as a result of applying a BCA on imports of electricity, another interviewee emphasized the state's belligerent attitude on climate policy:

⁹⁶ See section 5.3.1, above.

⁹⁷ See section 5.3.2, above.

⁹⁸ US, Bureau of Economic Analysis, "Gross Domestic Product (GDP) by State", online: BEA <<https://www.bea.gov/>> (retrieved 30 May 2018).

⁹⁹ *Ibid.*

¹⁰⁰ See US, International Trade Administration, "State Import Data", online: ITA <<https://www.trade.gov/>> (retrieved 3 May 2018), who note that "the trade data do not provide information to track or monitor interstate flows"; also interview of an academic (2 November 2017), who remarked: "Outside of electricity, there is very little data collected on interstate trade flows."

¹⁰¹ Interview of an anonymous source.

No. If anything, they would be like “Bring it on!” California’s view, especially in the current political climate [amidst the Trump administration], is like “Oh, other states want to fight with us over climate policy? Great! Bring it on! The federal government wants a fight? Great! We want that fight! We want to have a fight with [Attorney General] Jeff Sessions and [President] Donald Trump!”¹⁰²

In fact, the California government has regarded itself as a major, dominant player on climate policy over the years, not only within the US but also internationally. The state’s self-proclaimed global leadership role on climate policy is also emphasized in AB 32.¹⁰³ Although as a US state California is unable to enter into legally binding international treaties,¹⁰⁴ both Governors Schwarzenegger and Brown asserted themselves as “climate diplomats”¹⁰⁵ and “subnational treaty broker[s]”¹⁰⁶ and have signed a number of non-binding climate agreements with national and subnational governments.¹⁰⁷

In February 2007, Governor Schwarzenegger and the governors of four other US states formed the “Western Climate Initiative” to collaborate on cap-and-trade.¹⁰⁸ In May 2007, Governor Schwarzenegger signed a memorandum of understanding with British Columbia for joint climate action.¹⁰⁹ In November 2008, he signed an agreement with subnational governments in Indonesia and Brazil to reduce emissions from deforestation.¹¹⁰ In November

¹⁰² Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹⁰³ See US, Cal Health and Safety Code §§ 38501 (c)-(e) (2006).

¹⁰⁴ Debra Kahn, “Perry Overshadowed by Jerry Brown’s Rock Star Status”, *E&E News* (8 June 2017), online: *E&E News* <<https://www.eenews.net/>> [Kahn, “Rock Star Status”].

¹⁰⁵ Debra Kahn, “What’s Next for Golden State’s Climate Diplomats?”, *E&E News* (14 January 2016), online: *E&E News* <<https://www.eenews.net/>>.

¹⁰⁶ Debra Kahn, “Schwarzenegger Upstages Washington in Climate Change Diplomacy”, *E&E News* (18 November 2008), online: *E&E News* <<https://www.eenews.net/>>.

¹⁰⁷ See also David Vogel, *California Greenin’: How the Golden State Became an Environmental Leader* (Princeton, NJ: Princeton University Press, 2018) at 209-210.

¹⁰⁸ Darren Samuelsohn, “Five Western States to Launch Greenhouse Gas Trading Program”, *E&E News* (26 February 2007), online: *E&E News* <<https://www.eenews.net/>>.

¹⁰⁹ “Calif. Reaches Emissions Agreement With British Columbia”, *E&E News* (31 May 2007), online: *E&E News* <<https://www.eenews.net/>>.

¹¹⁰ Debra Kahn, “Agreement Makes Rainforest Protection Eligible for Calif. Emission Credits”, *E&E News* (19 November 2008), online: *E&E News* <<https://www.eenews.net/>>.

2010, Governor Schwarzenegger founded the “R20” climate initiative involving subnational governments from around the world to advance investments in green infrastructure.¹¹¹

Moreover, Governor Brown signed a memorandum of understanding with China’s National Development and Reform Commission in September 2013 to work together on cap-and-trade.¹¹² In May 2015, seeking to spur ambition at the 2016 Paris climate summit, Governor Brown signed a climate agreement with 11 other subnational governments from around the world.¹¹³ By the end of 2017, this “Under 2 MOU” memorandum of understanding had over 200 members, almost all of which are subnational governments.¹¹⁴ In July 2015, California and over 20 other subnational jurisdictions signed a memorandum at the “Climate Summit of the Americas” conference in Toronto.¹¹⁵ In the same month, Governor Brown travelled to the Vatican to discuss climate change with Pope Francis.¹¹⁶

In June 2017, in the wake of President Trump’s announced withdrawal of the Paris Agreement, California formed a coalition with the US states of New York and Washington – the “United States Climate Alliance” – vowing to take climate action and remain committed to the Paris Agreement.¹¹⁷ In the same month, Governor Brown signed several memorandums of understanding with the national government and subnational governments of China.¹¹⁸ Also in that month, Governor Brown was named the special envoy for states and regions to the international climate conference in Germany later that year.¹¹⁹ In July 2017,

¹¹¹ Debra Kahn, “Schwarzenegger Signs International Clean Finance Pact With REDD Linkage”, *E&E News* (17 November 2010), online: E&E News <<https://www.eenews.net/>>.

¹¹² Debra Kahn, “China Signs Carbon-Trading Assistance Pact With Calif.”, *E&E News* (16 September 2013), online: E&E News <<https://www.eenews.net/>>.

¹¹³ Debra Kahn, “Gov. Brown Signs Sweeping Climate Agreement With 11 International Governments”, *E&E News* (20 May 2015), online: E&E News <<https://www.eenews.net/>>.

¹¹⁴ The Climate Group, *Under2 Coalition Highlights 2017* (2018), online: Under2 Coalition <<http://www.under2coalition.org/>> (retrieved 31 May 2018) at 11.

¹¹⁵ Debra Kahn, “North American States, Provinces Sign Climate Agreement Aimed at Paris”, *E&E News* (10 July 2015), online: E&E News <<https://www.eenews.net/>>.

¹¹⁶ Scott Detrow, “Calif. Gov. Jerry Brown, U.S. Mayors to Travel to Vatican for Climate Meetings With Pope Francis”, *E&E News* (10 July 2015), online: E&E News <<https://www.eenews.net/>>.

¹¹⁷ Anne C Mulkern, “Calif., N.Y., Wash. Unite to Say They Will Honor Paris Agreement”, *E&E News* (2 June 2017), online: E&E News <<https://www.eenews.net/>>.

¹¹⁸ Kahn, “Rock Star Status”, *supra* note 104.

¹¹⁹ Debra Kahn, “Brown Named Special Envoy to U.N. Climate Talks”, *E&E News* (14 June 2017), online: E&E News <<https://www.eenews.net/>>.

Governor Brown announced that California would host an international climate summit called “Global Climate Action Summit,” which took place in San Francisco in September 2018.¹²⁰

California’s history of “climate diplomacy” attests to the state’s confidence in asserting itself as an “international superpower”¹²¹ in this area of policy-making. In order to organize these efforts, California established a “de facto State Department,” and Governor Brown was described as “America’s de facto leader on climate change.”¹²² Speaking about California’s 2013 memorandum of understanding with China’s National Development and Reform Commission, Governor Brown noted in March 2015: “It is a little bold to talk about the China-California partnership as though we were a separate nation. But we are a separate nation!”¹²³ Similarly, one interviewee highlighted the state’s assertive leadership role on climate policy:

California is out on the West Coast, very far from the East Coast centres of policy-making and power. It almost regards itself as an independent country on [climate policy]. “California is the sixth-largest economy in the world,” they like to say, and “we can do things independently of the rest of the nation.” They have defined that role for themselves so firmly that there is a lot of acceptance of it. (...) California knows the market power it has. And it is used to exercising it.¹²⁴

Another interviewee echoed these remarks: “California is a state that sees itself as a player both on the national stage and on the global stage. (...) The decision-makers in the state very much want to extend California’s influence to other jurisdictions. (...) There is a long history of California outreach to other states.”¹²⁵ California, therefore, is unlikely to

¹²⁰ Arianna Skibell, “Calif. Gov. Brown to Host International Climate Summit”, *E&E News* (7 July 2017), online: E&E News <<https://www.eenews.net/>>; Jean Chemnick, “Calif. Summit a Success, But Big Tests Still to Come”, *E&E News* (17 September 2018), online: E&E News <<https://www.eenews.net/>>.

¹²¹ Debra Kahn, “‘We Are a Separate Nation’ -- Brown Touts State’s Influence in Global Climate Arena”, *E&E News* (5 March 2015), online: E&E News <<https://www.eenews.net/>> [Kahn, “‘We Are a Separate Nation’”].

¹²² Vogel, *supra* note 107 at 226-227.

¹²³ Kahn, “‘We Are a Separate Nation’”, *supra* note 121.

¹²⁴ Interview of Timothy Profeta, Director, Nicholas Institute for Environmental Policy Solutions, Duke University (3 November 2017).

¹²⁵ Interview of Nancy Ryan, Partner, Energy + Environmental Economics (E3), former Commissioner, California Public Utilities Commission (23 August 2018).

eschew a dispute with other governments, whether from other countries or US states, and other governments are likely aware of this.

In summary, there is no evidence that any governments of other countries or US states exercised opposition to California's BCA on imports of electricity. This is likely due to California's highly import-oriented economy, which makes it relatively immune to retaliation from other countries, and because imports of electricity from other countries are minimal. In addition, the political influence and economic power of the US as a whole are likely to deter other countries from entering into a dispute with one of the country's states. Similarly, California's economic significance within the US likely deters opposition from other US states. What is more, neither policy-makers nor stakeholders in California showed any fear of opposition from other countries or US states. In fact, the California government has a history of asserting itself as a major, dominant player on climate policy both within the US and internationally. Indeed, due to the state's assertive climate leadership, California is unlikely to shy away from a dispute with other governments, who are likely aware of this. As a result, neither a fear of trade war and retaliation had to be overcome when introducing the BCA on imports of electricity, nor did it lead to the subsequent adoption of the exemptions that weakened the BCA. In other words, fear of trade war and retaliation cannot explain these policy outcomes.

5.4.2 Fear of Hampering International or US State-Level Climate Efforts

This section examines whether a fear of hampering international or US state-level climate efforts had to be overcome when introducing the BCA on imports of electricity or whether any such concerns led to the subsequent adoption of the exemptions that weakened the BCA.

In fact, there is no evidence that the BCA on imports of electricity negatively affected international climate efforts or any climate efforts by other US states. There is also no evidence that policy-makers in California had any concerns of that BCA having such an effect.

Although its leaders like to engage in “climate diplomacy” and assert California as a quasi-nation state in that area of policy-making,¹²⁶ California is not a nation state but a subnational jurisdiction. Accordingly, California has no formal role in the international climate negotiations under the United Nations Framework Convention on Climate Change. This, in turn, means that potential impacts of California’s policy-making on those negotiations are likely much less of a concern, if any, for policy-makers in California. What is more, California’s climate policy-making efforts are a reflection of the state’s aspiration for global leadership on climate action. Consequently, policy-makers in California are not likely to see their actions as endangering others’ climate efforts, neither with respect to international efforts nor those of other US states.

In conclusion, there is no evidence that the BCA on imports of electricity negatively affected international or US state-level climate efforts. Further, there is also no evidence that policy-makers in California had such concerns, neither during the introduction of that BCA nor its subsequent weakening. As a result, no fear of hampering international or US state-level climate efforts existed that could explain these policy outcomes.

5.5 Alternative Measures

This part examines whether a preference existed for alternative measures to pursue the benefits of a BCA on imports of electricity that explains the policy outcome, specifically whether a preference existed when introducing the BCA on imports of electricity or whether any such preference led to the adoption of the exemptions that weakened the BCA. The following remarks show that there was no preference for alternative measures.

All interviews confirmed that environmental reasons motivated policy-makers to include electricity imports in California’s cap-and-trade program. In fact, imports of electricity account for a significant share of emissions from California’s electricity consumption.¹²⁷ The PUC also highlighted this fact and noted: “[T]o obtain real [greenhouse gas] emissions

¹²⁶ See section 5.4.1.2, above.

¹²⁷ See part 5.2, above.

reductions, the design of an effective cap-and-trade program in the electricity sector must address the emissions associated with California's imported power. [Thus,] any cap-and-trade program design for California must include an import component."¹²⁸ Including electricity imports increases the amount of emissions covered under the cap-and-trade program, which in turn enhances the system's environmental benefits. Therefore, the question arises whether a preference for any alternative measures to reduce emissions from electricity imports may explain the policy outcome.

When considering the design of California's cap-and-trade program, policy-makers weighed a number of options for the electricity sector. In evaluating the design options for the point of regulation, the PUC designated the criterion of environmental effectiveness as the most important one.¹²⁹ Placing the point of regulation on the first deliverer of electricity was considered the preferred option,¹³⁰ particularly because it was found to be the best approach to cover both emissions from imported and in-state electricity and thus ensure the highest degree of environmental effectiveness.¹³¹ Policy-makers did not identify any preferable alternative measures to achieve the environmental benefits of a BCA on imports of electricity. Furthermore, when adopting the exemptions that weakened that BCA, policy-makers did not put in place any alternative measures to reduce emissions from electricity imports. Therefore, alternative measures cannot explain that policy outcome either.

It should be noted that free allocation was no alternative measure to reduce emissions from electricity imports in California. Free allocation cannot be used for this purpose because it cannot impose a compliance obligation on emissions from imported electricity. Unlike in the industrial sector of the cap-and-trade program,¹³² free allocation in the electricity sector was not implemented to address the nexus of competitiveness concerns and carbon leakage.¹³³ Although "there is very little risk that the carbon price signal would cause utility

¹²⁸ Public Utilities Commission, *supra* note 67 at 6.

¹²⁹ *Ibid* at 61.

¹³⁰ *Ibid* at 6-7.

¹³¹ See *ibid* at 61-63.

¹³² See chapter 6.

¹³³ See Danny Cullenward & David Weiskopf, "Resource Shuffling and the California Carbon Market" (2013) Stanford University, Working Paper at 14.

customers to leave the state,” ratepayers are sensitive to increases in their utility bills and free allocation was put in place to soften the impact of the cap-and-trade program on ratepayers and thus voters.¹³⁴ As a result, free allocation in the electricity sector was used for political reasons related to the electorate and it represented no alternative measure to reduce emissions from electricity imports.¹³⁵

In sum, when considering the design of California’s cap-and-trade program, policy-makers identified no preferable alternative measures to achieve the environmental benefits of a BCA on imports of electricity. Further, they did not put in place any alternative measures to reduce emissions from electricity imports when adopting the exemptions that weakened that BCA. As a result, alternative measures cannot explain these policy outcomes.

5.6 Practical Concerns

This part examines whether practical concerns had to be overcome when introducing the BCA on imports of electricity or whether any such considerations led to the subsequent adoption of the exemptions that weakened the BCA. The discussion first addresses potential concerns about the administrative complexity of implementing and administering the BCA on imports of electricity (section 5.6.1) before turning to concerns regarding the effectiveness of the BCA in achieving emissions reductions (section 5.6.2). This part finds that practical concerns about the administrative complexity of implementing and administering the BCA cannot explain the policy outcomes. However, concerns regarding the effectiveness of the BCA in achieving emissions reductions manifested themselves in the adoption of the exemptions that weakened the BCA.

¹³⁴ *Ibid.* The value of these free allowances over the period from 2013 to 2020 is estimated to exceed \$10bn; see *ibid.*

¹³⁵ If anything, because utilities continue to benefit from predetermined levels of free allocation even if they circumvent the compliance obligation through resource shuffling, the combination of free allowances and the exemptions offers incentives that increase the risk of carbon leakage; *ibid* at 12-13, 15. The authors use an example to illustrate this point (at 15): “For example, if a utility successfully divests from a coal power interest without shutting down the underlying facility, that utility will reduce its compliance obligations – despite the obvious leakage that results – and its customers will enjoy the benefits of an allocations schedule that was determined on the basis of legacy coal emissions.”

5.6.1 Administrative Complexity

In order to implement the BCA on imports of electricity, policy-makers need to assign emissions factors to electricity depending on how that electricity was generated, for example whether it was generated from coal, natural gas, or zero-emissions sources such as nuclear, hydro, or renewables. Because of the need to distinguish electricity based on the emissions intensity of its generation, policy-makers seek to trace the electricity back to its generating source.

For electricity generated in-state, operators of the generating facilities report their emissions and electricity to the ARB, which means that both the generating source and associated emissions are known.¹³⁶ For electricity imported from out-of-state, electricity importers also report to the ARB; however, because these entities did not generate the electricity themselves, reporting the emissions associated with imported electricity is more challenging and thus requires a different approach.

This is because, once placed on the grid, electricity from one source is indistinguishable from that of any other source. Indeed, there are no “green electrons” and “brown electrons” on the grid.¹³⁷ Due to the physical characteristics of electricity, “there simply is no way to precisely identify a kWh of end-use consumption as coming directly from one particular generation resource or another.”¹³⁸ Kaatz and Anders elaborate:

Electricity cannot be dispatched from one particular place to another; consumers draw undifferentiated energy from the electric grid that becomes energized when energy flows on to that grid. This means that the actual flow of power is unpredictable, uncontrollable, and untraceable because an energized grid is an undifferentiated electromagnetic wave that makes tracing the actual flow of electric power from a generator to a local distribution substation impossible.¹³⁹

¹³⁶ James Bushnell, Yihsu Chen & Matthew Zaragoza-Watkins, “Downstream Regulation of CO2 Emissions in California’s Electricity Sector” (2014) 64 Energy Policy 313 at 315.

¹³⁷ Cullenward & Weiskopf, *supra* note 133 at 8

¹³⁸ *Ibid.*

¹³⁹ Joe Kaatz & Scott Anders, “The Role of Unspecified Power in Developing Locally Relevant Greenhouse Gas Emission Factors in California’s Electric Sector” (2016) 29:9 The Electricity Journal 1 at 2.

Likewise, Bushnell, Chen, and Zaragoza-Watkins explain: “[Electricity] entering the grid flows over the path of least physical resistance, often traveling circuitously and always impacting the path of all other energy flows on the grid. Therefore, it is generally not possible to identify the source of imported electricity with sufficient granularity to assign a specific emissions obligation.”¹⁴⁰ In other words, the physical realities of electricity make it impossible to trace electrons themselves back to their source of generation.

Policy-makers, however, found another way to identify the generating source of imported electricity. Transactions on the electricity market can be used to trace that electricity back to its source. By following the contractual relationships between buyers and sellers of imported electricity, emissions can be “tracked on the basis of the legal and financial instruments that govern the industry.”¹⁴¹ Imported electricity that can be assigned facility-specific emissions is referred to as “specified electricity” or “electricity from specified sources.”¹⁴²

Nevertheless, while identifying the generating source and assigning facility-specific emissions is possible for the bulk of imported electricity, it is not possible for all electricity imports. Cullenward and Weiskopf highlight that “the contractual features of organized wholesale market and bilateral electricity transactions were not designed to track the greenhouse gas emissions intensity of participating resources.”¹⁴³ Consequently, situations arise in which “the contractual relationships are not clear, or the necessary data are not publicly available.”¹⁴⁴

For example, this difficulty concerns electricity imports purchased from electricity pools. Because electricity in these markets is bought “with no intention to purchase [from] a particular source,” the electricity “actually assigned to [a particular] transaction is random.”¹⁴⁵ Moreover, because electricity in these pools can be bought and sold multiple

¹⁴⁰ Bushnell, Chen & Zaragoza-Watkins, *supra* note 136 at 315.

¹⁴¹ Cullenward & Weiskopf, *supra* note 133 at 8-9.

¹⁴² US, Cal Code Regs tit 17 § 95802(354) (2011); see also ARB, “ISoR”, *supra* note 1 at II-19.

¹⁴³ Cullenward & Weiskopf, *supra* note 133 at 8.

¹⁴⁴ *Ibid* at 9.

¹⁴⁵ Kaatz & Anders, *supra* note 139 at 3.

times, and because short-term transactions are often concluded verbally and without an auditable paper trail, it may be challenging or even impossible to trace that electricity back to its original source.¹⁴⁶

Imported electricity that was generated at an unknown source, and thus cannot be assigned facility-specific emissions, is referred to as “unspecified electricity” or “electricity from unspecified sources.”¹⁴⁷ In fact, a significant share of imported electricity is from unspecified sources. In 2015, for instance, 40% of imported electricity was from unspecified sources, which is equivalent to 13% of electricity consumed in California in that year.¹⁴⁸

In these cases, policy-makers utilize a proxy method to assign an emissions factor to imported electricity. In particular, the ARB assigns a default emissions factor to unspecified electricity. This default emissions factor is equivalent to a relatively greenhouse gas efficient natural gas power plant, which represents the average marginal emissions intensity of electricity in the Western Interconnection.¹⁴⁹

To recap, the ARB was able to assign facility-specific emissions to both electricity generated in-state and imported electricity from specified sources and applies a default emissions factor to imported electricity from unspecified sources. In 2015, this approach ensured that facility-specific emissions were assigned to 87% of electricity consumed in California, with the default emissions factor applied to the remaining 13%.¹⁵⁰

Despite having encountered several difficulties, policy-makers found a pragmatic and relatively straightforward solution to the challenge of assigning emissions factors. Similarly, although acknowledging the difficulty of determining facility-specific emissions for imported electricity from specified sources, Cullenward and Weiskopf note that this problem

¹⁴⁶ *Ibid* at 3, 7.

¹⁴⁷ US, Cal Code Regs tit 17 § 95802(381) (2011); see also ARB, “ISoR”, *supra* note 1 at II-20.

¹⁴⁸ See CEC, “System Generation”, *supra* note 17

¹⁴⁹ See Bushnell, Chen & Zaragoza-Watkins, *supra* note 136 at 315; Kaatz & Anders, *supra* note 139 at 4. Specifically, the default emissions factor for unspecified electricity imports is 0.428 Mt of CO₂-eq/MWh; US, Cal Code Regs tit 17 § 95111(b)(1) (2010). The ARB adopted this factor from the Western Climate Initiative, which based it on the average greenhouse gas intensity of electricity generators in the Western Interconnection between 2006 and 2008; see Kaatz & Anders, *supra* note 139 at 4.

¹⁵⁰ See CEC, “System Generation”, *supra* note 17.

“should not be overstated.”¹⁵¹ Further, the PUC considered placing the point of regulation on the first deliverer of electricity a “workable” approach and the preferred option in terms of administrative complexity.¹⁵² In addition, concerning the availability of data to implement this approach, the ARB confirmed that “significant information is available on the generation and distribution of electricity [within the Western Interconnection], which covers all imported electricity consumed in California.”¹⁵³

The ARB’s assertion regarding the availability of data stands in contrast to claims from one industry stakeholder in particular. During the design phase of the cap-and-trade program, the Southern California Public Power Authority (SCPPA), which represents LADWP and other municipal utilities in Southern California, maintained that “no [greenhouse gas] emissions tracking device is available to permit identification of [greenhouse gas] emissions associated with imported electricity.”¹⁵⁴ SCPPA also claimed that “a deliverer approach would involve a larger number of regulated entities, and that this would complicate administration of the program.”¹⁵⁵ Given that policy-makers found a pragmatic and relatively straightforward solution to address concerns about the administrative complexity of implementing and administering the BCA, SCPPA’s comments might be an example of a stakeholder alleging these concerns to prevent the development of a BCA. The economic interests of some of SCPPA’s members may explain these claims. Specifically, SCPPA member LADWP imported a significant amount of electricity generated from coal.¹⁵⁶ Therefore, seeking to reduce LADWP’s compliance costs, SCPPA had an incentive to exaggerate the administrative complexity of a BCA on imports of electricity. By contrast, other stakeholders – namely San Diego Gas & Electric (SDGE), Southern California Gas,

¹⁵¹ Cullenward & Weiskopf, *supra* note 133 at 8.

¹⁵² Public Utilities Commission, *supra* note 67 at 67.

¹⁵³ ARB, “ISoR”, *supra* note 1 at IV-8.

¹⁵⁴ Public Utilities Commission, *supra* note 67 at 57.

¹⁵⁵ *Ibid.*

¹⁵⁶ In 2012, for instance, LADWP supplied some 10 TWh of electricity generated from coal, which is equivalent to 34% (around 29 TWh) of its total supply, while total electricity generated from all in-state coal sources was less than 2 TWh; US, California Energy Commission, “Utility Energy Supply Plans”, online: CEC <<http://www.energy.ca.gov/>> (retrieved 22 June 2018) [CEC, “Supply Plans”]; CEC, “System Generation”, *supra* note 17.

and the NGO Environmental Defense Fund (EDF) – held that, “while there would be more points of regulation for imports, the number [of regulated entities] would not be overly burdensome.”¹⁵⁷

To summarize, policy-makers encountered several difficulties in implementing the BCA on imports of electricity. However, they were able to overcome these challenges by adopting a pragmatic and relatively straightforward approach of assigning emissions factors to imported electricity. There is no evidence that policy-makers considered the administrative complexity of implementing and administering the BCA on imports of electricity to be too onerous. In addition, there is no evidence that any such concerns led to the subsequent adoption of the exemptions that weakened the BCA. As a result, practical concerns about the administrative complexity of implementing and administering the BCA cannot explain these policy outcomes.

5.6.2 Effectiveness in Achieving Emissions Reductions

This section examines whether concerns regarding the effectiveness of the BCA in achieving emissions reductions had to be overcome when introducing it or whether any such considerations led to the subsequent adoption of the exemptions that weakened the BCA.

Although the BCA on imports of electricity has been included from the start of California’s cap-and-trade program, policy-makers have been struggling to prevent market participants from circumventing the compliance obligation for imported electricity through resource shuffling. As will be shown, while concerns about circumvention, and thus the effectiveness of the BCA in achieving emissions reductions, did not prevent the adoption of the BCA, policy-makers were not able to overcome these concerns during the implementation of the measure. As a result, concerns regarding the effectiveness of the BCA in achieving emissions reductions manifested themselves in the adoption of the exemptions that weakened the BCA.

¹⁵⁷ Public Utilities Commission, *supra* note 67 at 57.

This section first expands on the concept of resource shuffling (section 5.6.2.1), then presents policy-makers' initial approach to addressing resource shuffling as well as stakeholders' criticism of that approach (section 5.6.2.2), describes policy-makers' revised approach (section 5.6.2.3), and discusses the impact of the revised approach on the effectiveness of the BCA in achieving emissions reductions (section 5.6.2.4).

5.6.2.1 Concept of Resource Shuffling

In general, resource shuffling, at times also referred to as “reshuffling”¹⁵⁸ or “contract shuffling,”¹⁵⁹ can be described as “a form of leakage [that] produces the false appearance of emission reductions without reducing net emissions to the atmosphere.”¹⁶⁰ More specifically, resource shuffling “occurs when output of an energy product [such as electricity] is reallocated among buyers in different regions so that the entities covered by the [cap-and-trade] program are buying the lower-carbon version and uncovered entities are buying the higher-carbon version, but no reduction in total emissions results.”¹⁶¹ The following example further illustrates the concept:

[W]hen a utility importing coal-fired electricity replaces its legacy coal contract with a lower-emitting alternative – such as electricity produced from natural gas, renewables, or even unspecified sources – it will no longer report the emissions associated with the legacy coal power plant. Whatever replacement power it secures, the utility will report a reduction in emissions, since coal has the highest greenhouse gas emissions profile. The result would suggest that the market has reduced greenhouse gas emissions, but total emissions to the atmosphere will not go down if the legacy coal plant continues to produce power for its new owners.¹⁶²

¹⁵⁸ E.g. James Bushnell, Carla Peterman & Catherine Wolfram, “Local Solutions to Global Problems: Climate Change Policies and Regulatory Jurisdiction” (2008) 2:2 Review of Environmental Economics and Policy 175; Severin Borenstein et al, “Expecting the Unexpected: Emissions Uncertainty and Environmental Market Design” (2014) at 5 [Borenstein et al, “Expecting the Unexpected”].

¹⁵⁹ E.g. *ibid*; Public Utilities Commission, *supra* note 67 at 48.

¹⁶⁰ Danny Cullenward, “Leakage in California’s Carbon Market” (2014) 27:9 The Electricity Journal 36 at 37 [Cullenward, “Leakage”].

¹⁶¹ Borenstein et al, “Expecting the Unexpected”, *supra* note 158 at 5.

¹⁶² Cullenward, “Leakage”, *supra* note 160 at 37.

From an economic perspective, resource shuffling can be described as a market response to incentives from carbon pricing. Taking a more moralistic perspective, resource shuffling could be perceived as allowing “buyers and sellers of electricity in the [Western Interconnection to] take advantage of differences in costs across jurisdictions (...) by structuring their transactions to claim credit under the cap-and-trade program for [emissions] reductions that only take place on paper.”¹⁶³ From this point of view, resource shuffling might be characterized as “a form of gaming”¹⁶⁴ where “a covered entity successfully ‘offshores’ its greenhouse gas liability to an unregulated party,”¹⁶⁵ thus leading to avoidance¹⁶⁶ or circumvention¹⁶⁷ of the compliance obligation under the cap-and-trade program. Regardless of how the concept is framed, resource shuffling of electricity involves minimal transaction costs because it “is more of a financial arrangement than a physical activity.”¹⁶⁸

There are different ways in which resource shuffling can occur. As illustrated in the above example, a California utility that imports electricity could replace an out-of-state generator that supplies greenhouse gas intensive electricity with a more greenhouse gas efficient generator while the previously contracted facility continues to produce electricity for a different customer. This form of resource shuffling is called “facility swapping.”¹⁶⁹ Other types of resource shuffling exploit the default emissions factor of unspecified electricity. One such form takes place when a utility masks electricity imported from a more greenhouse gas intensive generator as unspecified electricity. This kind of resource shuffling is called “laundering”¹⁷⁰ or “relabeling.”¹⁷¹ Finally, “cherry picking” appears to be a specific

¹⁶³ Jim Rossi & Andrew JD Smith, “Electric Power Resource ‘Shuffling’ and Subnational Carbon Regulation: Looking Upstream for a Solution” (2014) 5 San Diego Journal of Climate & Energy Law 43 at 47.

¹⁶⁴ *Ibid.*

¹⁶⁵ Cullenward & Weiskopf, *supra* note 133 at 1.

¹⁶⁶ Borenstein et al, “Expecting the Unexpected”, *supra* note 158 at 14.

¹⁶⁷ Bushnell, Peterman & Wolfram, *supra* note 158 at 181.

¹⁶⁸ *Ibid* at 184; see also section 5.6.1, above, on how financial transactions are used to track emissions of electricity imports.

¹⁶⁹ See US, California Air Resources Board, *Compliance Obligation for First Deliverers of Electricity* (26 August 2011), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 March 2018) at 10 [ARB, “First Deliverers”]; Rossi & Smith, *supra* note 163 at 50-51.

¹⁷⁰ See ARB, “First Deliverers”, *supra* note 169 at 10; Rossi & Smith, *supra* note 163 at 49-50.

form of facility swapping where a utility replaces imports of unspecified electricity with electricity from more greenhouse gas efficient sources.¹⁷²

The key aspect of resource shuffling is that the freed up capacity is still utilized to generate electricity, only now it is no longer for a utility in California but an out-of-state customer. As a result, the overall greenhouse gas intensity of electricity generated for the Western Interconnection remains unchanged, despite the seeming emissions reduction recorded in California's cap-and-trade program. In other words, "[w]hile reshuffling would not yield aggregate emissions reductions in the Western Interconnection, it could be a major source of measured emissions reductions under the [cap-and-trade] program."¹⁷³ Reflecting on the problem of resource shuffling in environmental policy-making in general, Bushnell, Peterman, and Wolfram explain: "If a sufficient percentage of the products affected by a regulation already complies with it, the policy's goals can be achieved by simply reshuffling who is buying from whom. This will make the policy completely ineffective, as it will not alter the rate at which the favored product is produced."¹⁷⁴

Resource shuffling has the potential to significantly undermine the environmental effectiveness of California's cap-and-trade program.¹⁷⁵ This is because resource shuffling creates carbon leakage since "an entity that engages in this activity reports emissions reductions that are matched by an increase in emissions [from an unregulated entity] outside the state."¹⁷⁶ What is more, these in-state entities "could sell any excess allowances they create by reshuffling," and other cap-and-trade participants could use these allowances for

¹⁷¹ Borenstein et al, "Expecting the Unexpected", *supra* note 158 at 7.

¹⁷² See ARB, "First Deliverers", *supra* note 169 at 10; Rossi & Smith, *supra* note 163 at 50; see also Nicholas W. van Aelstyn, Letter on behalf of Powerex to California Air Resources Board (2 August 2013) at 2-3, who describes "cherry picking" in more detail.

¹⁷³ Borenstein et al, "Expecting the Unexpected", *supra* note 158 at 38.

¹⁷⁴ Bushnell, Peterman & Wolfram, *supra* note 158 at 182. The authors point out that "the reshuffling problem is similar to the conditions that limit the effectiveness of consumer boycotts" (at 183).

¹⁷⁵ See *ibid* at 188. For estimates of the amount of carbon leakage resulting from resource shuffling under the exemptions, see section 5.6.2.4, below.

¹⁷⁶ Cullenward & Weiskopf, *supra* note 133 at 12.

compliance instead of reducing their emissions.¹⁷⁷ Therefore, resource shuffling puts at risk the environmental integrity of California's cap-and-trade program.

5.6.2.2 Initial Policy Approach and Criticism

In order to avoid these behaviours in California's cap-and-trade program and ensure the effectiveness of the BCA in achieving emissions reductions, policy-makers included a prohibition of resource shuffling in the initial program design that was adopted in October 2011.¹⁷⁸ The prohibition used the following definition of resource shuffling:

“Resource Shuffling” means any plan, scheme, or artifice to receive credit based on emissions reductions that have not occurred, involving the delivery of electricity to the California grid.¹⁷⁹

In fact, first deliverers of electricity were required to submit annual written attestations to the ARB confirming that they did not engage in resource shuffling, under penalty of perjury.¹⁸⁰

However, both market participants and observers perceived this approach as rigid and heavy-handed, and it soon led to criticism and calls for change. In essence, “industry was concerned about the risk of excessive liability because of the combination of the perceived vagueness of resource shuffling and ARB's perjury-enforced attestation requirement.”¹⁸¹ Stakeholders “were worried that the definition [of resource shuffling] might affect their normal business decisions.”¹⁸² Therefore, they sought clarification of both acceptable and prohibited market behaviours.¹⁸³ For instance, calling the issue of resource shuffling “a lightning rod,” the utility Southern California Edison (SCE) voiced concerns about “normal

¹⁷⁷ Bushnell, Peterman & Wolfram, *supra* note 158 at 188-189.

¹⁷⁸ US, Cal Code Regs tit 17 § 95852(b)(2) (2011).

¹⁷⁹ US, Cal Code Regs tit 17 § 95802(a)(251) (2011).

¹⁸⁰ US, Cal Code Regs tit 17 § 95852(b)(2) (2011).

¹⁸¹ Rossi & Smith, *supra* note 163 at 54.

¹⁸² Debra Kahn, “Calif. Emissions Traders Struggle to Understand ‘Resource Shuffling’”, *E&E News* (7 May 2012), online: E&E News <<https://www.eenews.net/>> [Kahn, “Resource Shuffling”].

¹⁸³ Interviews of Jan Smutny-Jones, Executive Director, Independent Energy Producers Association (20 October 2017) and a cap-and-trade market expert (29 November 2017).

[electricity] trading activity somehow being defined in conflict with regulation.”¹⁸⁴ SCPPA stated that the prohibition of resource shuffling “could adversely affect the wholesale electricity market” by “creat[ing] uncertainty and [leading to] a loss of liquidity in that market.”¹⁸⁵ Further, seeking to avoid “significant confusion among regulated entities,” the Independent Energy Producers Association (IEP) pointed to a need for clarification of the provisions on resource shuffling: “Without clarification, regulated entities will not know when otherwise legitimate market transactions would be perceived as avoiding an emissions obligation, and thus constitute resource shuffling.”¹⁸⁶

In addition, a law firm that provided business advice to market participants ascertained that the prohibition of resource shuffling lacked clarity and “[cast] a very wide net,” and thus recommended covered entities to “act cautiously” until further clarity is reached.¹⁸⁷ Also the PUC called for clarity “to ensure market participants clearly understand what does and does not constitute resource shuffling.”¹⁸⁸ Further, a representative of the environmental community stated that the “outright prohibition across the board was not a very workable or elegant approach.”¹⁸⁹ Similarly, academics held that the ARB “arguably did not define the prohibited practice in sufficient detail,”¹⁹⁰ thus making the prohibition of resource shuffling “in practice unworkable” because “there was no way to enforce it.”¹⁹¹ An academic elaborated on the criticism raised against the attestation requirement:

Essentially, what the attestation asked [first deliverers] to do was to sign a legally binding promise to not do something, to not reshuffle, under potential penalty of perjury, without [a clear] definition of what it was they were promising not to do.

¹⁸⁴ Debra Kahn, “Energy Crisis Echoes as State Refines Cap-and-Trade Design”, *E&E News* (16 April 2012), online: E&E News <<https://www.eenews.net/>>.

¹⁸⁵ US, California Air Resources Board, *Transcript of Public Board Meeting of 20 October 2011* (2011), online: ARB <<https://www.arb.ca.gov/>> (retrieved 3 August 2017) at 139 [ARB, “Transcript 2011”].

¹⁸⁶ Independent Energy Producers Association, *Comments of the Independent Energy Producers Association On CARB’s Proposed Regulation to Implement the California Cap-and-Trade Program* (27 September 2011), online: ARB <<https://www.arb.ca.gov/>> (retrieved 27 July 2017) at 6.

¹⁸⁷ Linklaters, “California Agency Unanimously Adopts Cap-and-Trade Regulations: A Review of Key Program Design Elements and Outstanding Issues” (25 October 2011) at 10-11.

¹⁸⁸ ARB, “Transcript 2011”, *supra* note 185 at 43.

¹⁸⁹ Interview of a representative of the environmental community (16 November 2017).

¹⁹⁰ Cullenward & Weiskopf, *supra* note 133 at 1.

¹⁹¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

Nobody was going to sign that. Because the whole idea was to make individuals personally liable for something, reshuffling, but ARB was unwilling to define what reshuffling was... because it is hard to define! But the [first deliverers] said they were not going to sign an open-ended, potentially criminally binding attestation when they did not have any idea what exactly it was they were supposed to not be doing.¹⁹²

In its first response to this criticism, the ARB contended that no change to the approach was needed.¹⁹³ Instead, the ARB promised market participants “limited guidance” regarding permissible behaviours and to “work with stakeholders to help [identify] whether specific actions constitute resource shuffling.”¹⁹⁴ The ARB further indicated that it would assess potential violations based on “the specifics of each situation [and] that [market] participants’ guilt would hinge on whether they intended to escape carbon regulation.”¹⁹⁵ However, stakeholders voiced doubts about the ARB’s “ability to assess malicious intent.”¹⁹⁶ In addition, according to an industry stakeholder, the ARB, described by another interviewee as having had “very little to do with the electricity sector throughout its history,”¹⁹⁷ lacked in-house expertise in assessing electricity market transactions:

There are [market] transactions occurring all the time [and] ARB gets asked: “Is this resource shuffling? Is this not?” They have to make these decisions. The hard part was that ARB is not an energy agency. They are an air quality agency. They needed technical expertise from places like the California Independent System Operator, the California Energy Commission, or the PUC. (...) They knew they needed help.¹⁹⁸

In August 2012, a member of the US Federal Energy Regulatory Commission (FERC), which regulates the interstate transmission of electricity, urged Governor Brown in a letter to “direct ARB to suspend enforcement of the prohibition of resource shuffling.”¹⁹⁹ In the letter,

¹⁹² Interview of an academic (2 November 2017).

¹⁹³ ARB, “Electricity Workshop”, *supra* note 33 at 23.

¹⁹⁴ *Ibid.*

¹⁹⁵ Kahn, “Resource Shuffling”, *supra* note 182.

¹⁹⁶ *Ibid.*

¹⁹⁷ Interview of Nancy Ryan, Partner, Energy + Environmental Economics (E3), former Commissioner, California Public Utilities Commission (23 August 2018).

¹⁹⁸ Interview of an industry representative (30 October 2017).

¹⁹⁹ US, Federal Energy Regulatory Commission, Letter from Commissioner Philip D. Moeller to California Governor Edmund G. Brown (6 August 2012) at 2 [FERC Letter]; see also Debra Kahn, “FERC Commissioner

the FERC commissioner warned: “[B]y failing to clearly define ‘resource shuffling’ but nevertheless prohibiting it, and by requiring energy importers to affirm, under penalty of perjury, that they have not engaged in resource shuffling, the ARB is creating uncertainty and great concern among entities that sell into California.”²⁰⁰ The FERC commissioner stated that he was “extremely concerned about the potential disruption to California’s electricity market” and highlighted that “the potential ramifications to the economies of California and the Western states require extreme caution to prevent market and supply disruptions.”²⁰¹ Citing a need for regulatory certainty, the FERC commissioner therefore requested the ARB’s approach to be “rectified (...) until such time that the ARB clarifies rules surrounding compliance with, and enforcement of, the [prohibition of resource shuffling].”²⁰²

5.6.2.3 Revised Policy Approach

Following the FERC commissioner’s letter of August 2012, the ARB changed its approach on resource shuffling. The ARB responded only ten days later by acknowledging that “[market] participants need a clear understanding of the rules to which they will be held accountable” and announced that it would indeed suspend enforcement of the attestation requirement.²⁰³ One month after that, and merely a few months before the compliance obligation would begin to take effect, the ARB suspended the enforcement of the attestation requirement.²⁰⁴ In October 2012, the ARB directed its staff to define market behaviours that the ARB would not consider resource shuffling based on a proposed list of 13 exemptions, which the ARB called “safe harbours.”²⁰⁵

Warns Against Calif. Cap-and-Trade Provision”, *E&E News* (7 August 2012), online: E&E News <<https://www.eenews.net/>>.

²⁰⁰ FERC Letter, *supra* note 199 at 1.

²⁰¹ *Ibid.* FERC’s chairman subsequently echoed these concerns; see Kahn, “Regulators Still Worried”, *supra* note 27.

²⁰² FERC Letter, *supra* note 199 at 1-2.

²⁰³ US, California Air Resources Board, Letter from Chairman Mary D. Nichols to FERC Commissioner Philip D. Moeller (16 August 2012) at 1; see also Kahn, “Calif. Will Relax”, *supra* note 26.

²⁰⁴ ARB, *Resolution 12-33*, *supra* note 26.

²⁰⁵ ARB, *Resolution 12-51*, *supra* note 27; see also Kahn, “Regulators Still Worried”, *supra* note 27.

In April 2014, a month before the first deadline to submit attestations on resource shuffling,²⁰⁶ the ARB amended the cap-and-trade program to remove the attestation requirement.²⁰⁷ What is more, the ARB also changed the definition of resource shuffling and included a reference to a list of exemptions that had previously been prohibited as resource shuffling but were henceforth deemed legal.²⁰⁸ The amended definition of resource shuffling reads as follows:

“Resource Shuffling” means any plan, scheme, or artifice undertaken by a First Deliverer of Electricity to substitute electricity deliveries from sources with relatively lower emissions for electricity deliveries from sources with relatively higher emissions to reduce its emissions compliance obligation. Resource shuffling does not include substitution of electricity deliveries from sources with relatively lower emissions for electricity deliveries from sources with relatively higher emissions resources when the substitution occurs pursuant to the conditions listed in section 95852(b)(2)(A).²⁰⁹

On the one hand, the list referenced at the end of this definition includes arguably reasonable exemptions for electricity imports in cases of transmission or distribution constraints, electricity outages and emergencies,²¹⁰ or to “make up for transmission losses.”²¹¹ On the other hand, the list also contains a number of broad-stroke “loopholes”²¹² that readily offer opportunities for circumventing the compliance obligation as long as compliance entities can show that the electricity, for instance, is imported “for the purpose of compliance with state or federal laws and regulations,”²¹³ to “substitute for deliveries that have been discontinued (...) for reasons other than reducing a [greenhouse gas] compliance obligation,”²¹⁴ or simply because it is “necessitated by expiration of a contract.”²¹⁵

²⁰⁶ See US, Cal Code Regs tit 17 § 95852(b)(2) (2011).

²⁰⁷ ARB, *Resolution 14-4*, *supra* note 28.

²⁰⁸ *Ibid*; see also Kahn, “Free Allowances”, *supra* note 28.

²⁰⁹ US, Cal Code Regs tit 17 § 95802(a)(336) (2014).

²¹⁰ US, Cal Code Regs tit 17 § 95852(b)(2)(A)(11) (2014).

²¹¹ US, Cal Code Regs tit 17 § 95852(b)(2)(A)(13) (2014).

²¹² US, California State Senate Committee on Environmental Quality, *Analysis of Bill AB 398* (10 July 2017) (2017) at 11.

²¹³ US, Cal Code Regs tit 17 § 95852(b)(2)(A)(2) (2014).

²¹⁴ US, Cal Code Regs tit 17 § 95852(b)(2)(A)(6) (2014).

²¹⁵ US, Cal Code Regs tit 17 § 95852(b)(2)(A)(8) (2014).

Particularly these latter provisions prompted legal analysts to warn that the exemptions “are so broad as to completely swallow the prohibition on resource shuffling” because “almost all [electricity market] transactions can be structured to fit into several of the broadest provisions.”²¹⁶

Apart from minor refinements, the list of exemptions consists of the 13 provisions the ARB had proposed earlier. In fact, a group of major utilities had essentially drafted the exemptions.²¹⁷ Pacific Gas and Electric (PG&E), SDGE, and SCE put forward a list of acceptable market behaviours at a public meeting in September 2012.²¹⁸ The list of exemptions the ARB had proposed in October 2012 and adopted in April 2014 effectively covers all of the market behaviours these utilities advanced, plus some additional ones.²¹⁹

Evidence from interviews suggests that stakeholders’ perception of regulatory ambiguity with regards to the initial prohibition of resource shuffling led the ARB to adopt the exemptions. Stakeholders perceived the initial rules as so unclear that their application would have led to unpredictable and seemingly arbitrary results. Seeking more regulatory clarity, stakeholders voiced their concerns to FERC, which prompted the letter by one of its commissioners. Governor Brown then instructed the ARB to change course on its approach to resource shuffling.²²⁰ An industry representative also confirmed that stakeholders’ requests for regulatory clarity led the ARB to adopt the exemptions.²²¹

²¹⁶ Cullenward & Weiskopf, *supra* note 133 at 1-2.

²¹⁷ Interviews of an industry representative (30 October 2017), Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017), and Michael Wara, Professor of Law, Stanford University (31 October 2017).

²¹⁸ Pacific Gas and Electric, San Diego Gas & Electric & Southern California Edison, *IOUs Proposed Remedies for Outstanding Concerns Regarding Resource Shuffling Language in the ARB’s Cap-and-Trade Regulation* (24 September 2012), online: ARB <<https://www.arb.ca.gov/>> (retrieved 31 October 2017) at 5-6; see also Danny Cullenward, “How California’s Carbon Market Actually Works” (2014) 70:5 *Bulletin of the Atomic Scientists* 35 at 38, 44 [Cullenward, “Carbon Market”].

²¹⁹ Also *ibid* at 38, who calls the ARB’s proposed list of October 2012 “directly comparable to, if not more permissive than, the [utilities’] proposal.”

²²⁰ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²²¹ Interview of an industry representative (30 October 2017).

5.6.2.4 Impact on the Effectiveness of the BCA in Achieving Emissions Reductions

While there is a recognition of the difficulty in designing a prohibition of resource shuffling,²²² existing research indicates that the exemptions are likely to cause significant carbon leakage. Estimates of the amount of carbon leakage resulting from resource shuffling under the exemptions depend on several factors. The extent of carbon leakage is contingent on the amount of electricity imported from out-of-state, the degree of resource shuffling occurring with respect to these imports, and the emissions profile of the replacement power secured.²²³ The highest amount of carbon leakage occurs if a large amount of electricity is imported, all of those imports are reshuffled, and the newly imported replacement electricity comes from zero-emission sources. Because compliance entities may sell unused allowances created through resource shuffling to market participants in other sectors,²²⁴ resource shuffling in the electricity sector has the potential to undermine the environmental integrity of the entire cap-and-trade program.

Cullenward and Weiskopf calculate resource shuffling through the exemptions to potentially cause “massive, widespread leakage” between 108 and 187 Mt CO₂-eq until 2020.²²⁵ The authors warn that the exemptions “can be easily exploited by parties who wish to avoid the basic prohibition [of] resource shuffling.”²²⁶ Therefore, the authors conclude, the exemptions “[undermine] the economic and environmental integrity of [the California carbon market].”²²⁷

Similarly, a group of economists who advised the ARB on the cap-and-trade program estimates that resource shuffling under the exemptions could lead to carbon leakage ranging

²²² E.g. Cullenward & Weiskopf, *supra* note 133 at 30; interviews of Michael Wara, Professor of Law, Stanford University (31 October 2017) and an academic (2 November 2017).

²²³ See Borenstein et al, “Expecting the Unexpected”, *supra* note 158 at 38-39; Cullenward & Weiskopf, *supra* note 133 at 28; Cullenward, “Leakage”, *supra* note 160 at 42.

²²⁴ Bushnell, Peterman & Wolfram, *supra* note 158 at 188-189.

²²⁵ Cullenward & Weiskopf, *supra* note 133 at 2, 21.

²²⁶ *Ibid* at 26.

²²⁷ *Ibid* at 37; see also Debra Kahn, “Economists Raise Alarm About Out-of-State Emissions ‘Leakage’”, *E&E News* (24 October 2013), online: E&E News <<https://www.eenews.net/>>.

from 74 to even 319 Mt CO₂-eq until 2020.²²⁸ The authors highlight that, besides the use of offsets, the amount of resource shuffling constitutes “the greatest [source of] uncertainty in abatement supply to the market.”²²⁹ These alarming estimates led one of the authors to conclude: “If you use enough of those [exemptions], you can shuffle your way out of all your obligations.”²³⁰

Furthermore, simulating the effects of resource shuffling using an economic model, Bushnell, Chen, and Zaragoza-Watkins find that the BCA on imports of electricity combined with the exemptions is “only marginally more effective” in reducing emissions than a program design covering only electricity that is generated in-state.²³¹ Like others, the authors conclude that “even a modest weakening of the [prohibition of] reshuffling will greatly undermine the strictness of the emissions cap through reshuffling.”²³²

Equally, Caron, Rausch, and Winchester also use an economic model and find that, without effective provisions to prevent resource shuffling, the BCA on imports of electricity is no more effective in reducing carbon leakage than a program design without including electricity imports.²³³ In line with other studies, the authors conclude that California’s BCA on imports of electricity “will not be an effective measure to reduce leakage if resource shuffling takes place.”²³⁴

Similarly, another study quantifies the carbon leakage from three specific market transactions that the prohibition of resource shuffling had originally sought to prevent but which the exemptions subsequently legalized. Cullenward estimates that transactions by SCE, LADWP, and the California Department of Water Resources will cause between 34

²²⁸ Borenstein et al, “Expecting the Unexpected”, *supra* note 158 at 39.

²²⁹ See *ibid* at 41.

²³⁰ Evan Halper & Ralph Vartabedian, “Despite California Climate Law, Carbon Emissions May Be a Shell Game”, *Los Angeles Times* (25 October 2014), online: *Los Angeles Times* <<http://www.latimes.com/>>.

²³¹ Bushnell, Chen & Zaragoza-Watkins, *supra* note 136 at 313.

²³² *Ibid* at 314.

²³³ See Caron, Rausch & Winchester, *supra* note 1 at 185.

²³⁴ *Ibid*.

and 59 Mt CO₂-eq of carbon leakage until 2020.²³⁵ The author concludes that the cap-and-trade program is “no longer capable of controlling leakage in the carbon market” and that the evidence “support[s] the argument that [ARB’s exemptions] effectively undermined the prohibition [of] resource shuffling.”²³⁶

In sum, existing research shows that the amount of carbon leakage from resource shuffling under the exemptions is likely to be significant, with leakage until 2020 estimated to be at least 74 Mt CO₂-eq and as much as 319 Mt CO₂-eq. To put these figures in perspective, California’s entire cap-and-trade program is expected to reduce emissions between 18 and 27 Mt CO₂-eq by 2020,²³⁷ while the total anticipated emissions reductions from the implementation of AB 32, which includes a series of other policy measures in addition to the cap-and-trade program, amount to some 147 Mt CO₂-eq by 2020.²³⁸ Therefore, even the low estimate of carbon leakage from resource shuffling under the exemptions represents a multiple of the emissions reductions expected under the entire cap-and-trade program and half of those from all policy measures under AB 32 combined. In the worst case, carbon leakage under the exemptions could even offset all of the emissions reductions from all policy measures under AB 32 combined by a factor of more than two.

Not surprisingly given these alarming findings, the exemptions have been described as a “fatal flaw” in the cap-and-trade program.²³⁹ Indeed, stakeholders from the environmental community and academics criticized the exemptions for being too wide-ranging in scope and, as a consequence, for weakening the BCA on imports of electricity. A representative of the environmental community called the exemptions “far too expansive and capacious” and elaborated:

Yes, in theory and on paper, we have a requirement that importers face the compliance obligation under the program, and we have a prohibition on resource

²³⁵ Cullenward, “Leakage”, *supra* note 160 at 42; see also Debra Kahn, “Calif. Cuts Part of Its Greenhouse Gas Emissions by Exporting Them”, *E&E News* (25 April 2014), online: E&E News <<https://www.eenews.net/>> [Kahn, “Exporting”].

²³⁶ Cullenward, “Leakage”, *supra* note 160 at 43, 46.

²³⁷ ARB, “ISoR”, *supra* note 1 at ES-11.

²³⁸ ARB, “Scoping Plan”, *supra* note 4 at 17.

²³⁹ Kahn, “Exporting”, *supra* note 235.

shuffling. But in practice, there are limits to the reach of California's enforcement, and some critics would certainly argue that the actual enforcement and requirements that are put on importers are quite lax.²⁴⁰

While the representative acknowledged stakeholders' "legitimate" concerns about the ARB's initial approach to address resource shuffling, this interviewee criticized the permissive nature of the revised approach: "The problem was that the course correction was far too much to the other side. If you look at [the exemptions], you could drive a truck through them. There is [also a lack of] clarity [about] the burden of proof, and I am not aware of any enforcement action that has been taken. So that is a problem."²⁴¹

Others echoed the view that the exemptions eroded the prohibition of resource shuffling. An academic asserted: "The [exemptions] for electricity imports, in many people's view, basically allow for resource shuffling. Because they allow so many different [market behaviours], anybody who is a good lawyer and works in power trading can manipulate [the market to engage in] resource shuffling."²⁴² Similarly, another academic stated: "ARB still maintains that resource shuffling is prohibited, but you can structure any transaction to fit within these [exemptions]. So as far as I am concerned, [the prohibition of resource shuffling] disappeared."²⁴³ Likewise, the academic noted elsewhere that the exemptions "gutted the prohibition on resource shuffling."²⁴⁴

According to a former Commissioner of the PUC, policy-makers had been aware as early as in 2006, when AB 32 was passed into law, that resource shuffling was an issue that would need to be addressed during the design and implementation of the BCA.²⁴⁵ However, while there was some degree of skepticism about whether an effective BCA could be designed, policy-makers were confident they would be able to address these concerns later on. An interviewee described this sentiment among policy-makers as follows:

²⁴⁰ Interview of a representative of the environmental community (16 November 2017).

²⁴¹ *Ibid.*

²⁴² Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁴³ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

²⁴⁴ Danny Cullenward, "The Limits of Administrative Law as Regulatory Oversight in Linked Carbon Markets" (2015) 33 UCLA Journal of Environmental Law and Policy 1 at 22.

²⁴⁵ Interview of Nancy Ryan, Partner, Energy + Environmental Economics (E3), former Commissioner, California Public Utilities Commission (23 August 2018).

I think the attitude was: “We’ll figure it out.” That is very much the culture, especially at the ARB. The DNA of that organization is very much shaped by engineers. There is just this classic engineering perspective of: “There’s a solution [to this problem] and I’ll figure it out. I don’t know how it works but that doesn’t matter because I’m an engineer. I solve problems.”²⁴⁶

In fact, even if there was to be some degree of resource shuffling, the BCA was important to policy-makers for its symbolic value in highlighting California’s efforts to address climate change: “There was a recognition that resource shuffling might diminish the effectiveness of the border adjustment, but outweighing that with the symbolic value was very important to people involved in the discussions.”²⁴⁷

While policy-makers were aware of concerns about resource shuffling for some time and regarded it as a technicality that they were confident they would be able to address later on, the extent of the potential environmental impact of resource shuffling became known only much later. Estimates of the amount of carbon leakage resulting from resource shuffling under the exemptions emerged in June 2013 and further analysis was published in January 2014.²⁴⁸ This was after the ARB proposed its list of possible exemptions in October 2012, but still before it adopted the exemptions in April 2014. The fact that policy-makers adopted the exemptions despite these alarming estimates indicates that they were likely limited in their ability to address these concerns. An electricity market expert expressed the difficulty in preventing resource shuffling as follows: “You’re essentially playing a game of Whac-A-Mole. (...) Resource shuffling is going to occur, and I don’t think there’s any way you can design the regulations so tightly you can prevent that from happening.”²⁴⁹

In conclusion, resource shuffling describes several practices to circumvent the compliance obligation for imported electricity that create carbon leakage. In order to ban such circumvention and ensure the effectiveness of the BCA in achieving emissions reductions, policy-makers included a prohibition of resource shuffling in the initial program

²⁴⁶ *Ibid.*

²⁴⁷ *Ibid.*

²⁴⁸ See Severin Borenstein et al, “Forecasting Supply and Demand Balance in California’s Greenhouse Gas Cap and Trade Market” (2013); Cullenward & Weiskopf, *supra* note 133; Borenstein et al, “Expecting the Unexpected”, *supra* note 158.

²⁴⁹ See Kahn, “Resource Shuffling”, *supra* note 182.

design. However, stakeholders criticized the prohibition for failing to clearly define resource shuffling and thus for creating regulatory ambiguity. Stakeholders' requests for clarification led the ARB to change its approach and adopt a list of exemptions that had previously been prohibited as resource shuffling but were henceforth deemed legal. Existing research shows that the exemptions are so permissive in scope that they are likely to cause significant carbon leakage. The exemptions weakened the BCA on imports of electricity by undermining its effectiveness in achieving emissions reductions. In fact, because unused allowances created through resource shuffling can be sold to market participants in other sectors, the exemptions provide an outlet for carbon leakage beyond the electricity sector and thus put at risk the environmental integrity of the entire cap-and-trade program.

Policy-makers were aware of concerns about resource shuffling before the adoption of the BCA, but were confident that these concerns could be addressed during its implementation. However, although the ARB adopted the BCA, the subsequent introduction of the exemptions meant that the BCA never became effective as originally intended but only in a weakened form. On the one hand, policy-makers sought to prevent resource shuffling but their initial approach created regulatory ambiguity. On the other hand, the revised approach using the exemptions created regulatory clarity but was unable to prevent resource shuffling. Consequently, although concerns about circumvention, and thus the effectiveness of the BCA in achieving emissions reductions, did not prevent the adoption of the BCA, policy-makers were not able to overcome these concerns during the implementation of the measure. As a result, concerns regarding the effectiveness of the BCA in achieving emissions reductions manifested themselves in the adoption of the exemptions that weakened the BCA.

5.7 Domestic Political Opposition

This part examines whether domestic political opposition to the BCA on imports of electricity explains the policy outcome, specifically whether such opposition had to be overcome when introducing the BCA on imports of electricity or whether such opposition led to the subsequent adoption of the exemptions that weakened the BCA. As will be seen, while policy-makers were initially able to overcome opposition from the utilities sector and

introduce the BCA, opposition from a group of major utilities subsequently led to the adoption of the exemptions that weakened the BCA.

Opposition to the BCA on imports of electricity particularly came from major utilities that imported a large share of electricity from greenhouse gas intensive generators. However, this opposition faced a strong coalition consisting of policy-makers and NGOs that was keen on putting in place environmentally ambitious climate policy, including an environmentally ambitious cap-and-trade program.²⁵⁰ Given that imports account for a significant share of emissions from the state's electricity consumption,²⁵¹ the supporters sought to put an end to the demand created by California ratepayers for electricity from out-of-state coal plants.²⁵²

In fact, by including the requirement to reduce emissions from imported electricity in AB 32, policy-makers may have sought to effectively outsource some of the state's emissions reductions.²⁵³ Indeed, a significant share of the emissions reductions under AB 32 was expected to come from the electricity sector, particularly from imports. Compared to a business-as-usual scenario, the electricity sector was to contribute some 40% (32 Mt CO₂-eq) of the emissions reductions under AB 32 by 2020, with in-state electricity emissions to be reduced by 14% (5 Mt CO₂-eq) and emissions from imported electricity by 45% (27 Mt CO₂-eq).²⁵⁴ Therefore, more than 80% of the emissions reductions from the electricity sector were anticipated from electricity imports. This way, policy-makers essentially leveraged out-of-state abatement opportunities.

Both NGOs and policy-makers within the administration were pushing for AB 32 and “there was no way [the bill] could have gotten passed without [the requirement to reduce emissions from imported electricity],” particularly because the bill “would not have gotten

²⁵⁰ See Guri Bang, David G Victor & Steinar Andresen, “California’s Cap-and-Trade System: Diffusion and Lessons” (2017) 17:3 Global Environmental Politics 12 at 22.

²⁵¹ See part 5.2, above.

²⁵² Interview of Nancy Ryan, Partner, Energy + Environmental Economics (E3), former Commissioner, California Public Utilities Commission (23 August 2018).

²⁵³ See Kathryn Harrison, “Federalism and Climate Policy Innovation: A Critical Reassessment” (2013) 39:S2 Canadian Public Policy 95 at S98, S106.

²⁵⁴ US, California Air Resources Board, *Updated Economic Analysis of California’s Climate Change Scoping Plan: Staff Report to the Air Resources Board* (24 March 2010), online: ARB <<https://www.arb.ca.gov/>> (retrieved 25 May 2019) at 45.

the support of the environmental advocates unless it dealt with imports.”²⁵⁵ Also a strong Democratic majority in the state legislature was interested in environmentally ambitious climate policy, and the governor’s office supported strong climate policy throughout the years, both under Governor Schwarzenegger and Governor Brown.²⁵⁶ This enabled the ARB to “shop around for support” between the state legislature and the governor’s office if needed.²⁵⁷

NGOs, especially the Natural Resources Defense Council (NRDC) and the EDF, collaborated closely with policy-makers during the design phase of the cap-and-trade program and “had a powerful position in designing key elements” of the program.²⁵⁸ The NRDC was described as “one of the key architects” of the cap-and-trade program with ARB Chair Mary Nichols, for example, having worked at the NGO before coming to the ARB.²⁵⁹ The NRDC and the EDF were characterized as politically “strong” and NGOs as having a “critical” role in putting in place the BCA on imports of electricity.²⁶⁰

Compliance entities’ exposure to the carbon price under California’s cap-and-trade program informed their attitudes towards the inclusion of electricity imports. As will be seen, seeking to reduce compliance costs, those who imported electricity from out-of-state greenhouse gas intensive generators opposed the inclusion of electricity imports. Conversely, those who produced in-state electricity supported the inclusion of electricity imports for competitiveness reasons. This explains why the IEP supported the BCA on imports of electricity.²⁶¹ Representing in-state electricity generators that produced electricity mostly from natural gas and renewables, the IEP supported the BCA to ensure that the compliance obligation not only applied to electricity produced in-state but also to electricity imported

²⁵⁵ Interview of Nancy Ryan, Partner, Energy + Environmental Economics (E3), former Commissioner, California Public Utilities Commission (23 August 2018).

²⁵⁶ Bang, Victor & Andresen, *supra* note 250 at 22-23.

²⁵⁷ *Ibid* at 23.

²⁵⁸ *Ibid*.

²⁵⁹ *Ibid*.

²⁶⁰ Interview of an industry representative (30 October 2017).

²⁶¹ Interview of Jan Smutny-Jones, Executive Director, Independent Energy Producers Association (20 October 2017).

from out-of-state.²⁶² This way, the IEP sought to ensure that in-state electricity generators would not lose customers to out-of-state electricity generators.

In contrast to the IEP, whose members produced electricity in-state, other compliance entities opposed the BCA, particularly major utilities that imported a large share of electricity from out-of-state greenhouse gas intensive generators. LADWP imported a significant amount of electricity generated from coal. For instance, in 2012, LADWP supplied some 10 TWh of electricity generated from coal, which is equivalent to 34% (around 29 TWh) of its total supply, while total electricity generated from all in-state coal sources was less than 2 TWh.²⁶³ Similarly, SCE imported a significant amount of electricity from unspecified sources, which are likely greenhouse gas intensive.²⁶⁴ Also in 2012, SCE imported some 34 TWh of electricity from unspecified sources, which is equivalent to 41% (around 82 TWh) of its total supply.²⁶⁵ For comparison, this represents 33% of all electricity imports (103 TWh) to California and 68% of all imports from unspecified sources (50 TWh) in that year.²⁶⁶ Because importers have an incentive to designate electricity from greenhouse gas efficient sources as specified electricity to reduce their compliance obligation,²⁶⁷ SCE's imports of unspecified electricity are likely from a mix of natural gas and coal sources. Table 5 offers an overview of stakeholders and their positions with respect to the BCA on imports of electricity.

Initially, during the design phase of the cap-and-trade program, the major utilities had opposed the BCA on imports of electricity.²⁶⁸ They gave up their opposition, however, once

²⁶² Debra Kahn, "FERC Rejects Utility Challenge to Calif. Cap-and-Trade Rule Changes", *E&E News* (15 February 2013), online: E&E News <<https://www.eenews.net/>>; also Halper & Vartabedian, *supra* note 230.

²⁶³ CEC, "Supply Plans", *supra* note 156; CEC, "System Generation", *supra* note 17.

²⁶⁴ For more information on "unspecified electricity," see section 5.6.1, above.

²⁶⁵ CEC, "Supply Plans", *supra* note 156; US, California Energy Commission, "Utility Annual Power Content Labels", online: CEC <<http://www.energy.ca.gov/>> (retrieved 18 June 2018).

²⁶⁶ See CEC, "System Generation", *supra* note 17.

²⁶⁷ See Cullenward & Weiskopf, *supra* note 133 at 9. This is because the default emissions factor assigned to unspecified electricity is equivalent to a relatively greenhouse gas efficient natural gas power plant; see section 5.6.1, above.

²⁶⁸ Interview of an industry representative (30 October 2017).

Table 5: Domestic stakeholder positions in the California electricity case

Opposition	Support
SCE, PG&E, LADWP, SDGE (utilities)	NGOs (NRDC, EDF)
SCPPA (municipal utilities in Southern California)	IEP (in-state electricity generators)

Governor Brown and the ARB promised that utilities would receive free allocation to alleviate the cost impact on ratepayers.²⁶⁹ Speaking from the perspective of the utilities, an industry representative explained: “Once we knew that we were going to get free allocation of allowances, it allowed us as utilities to be more open to [the BCA].”²⁷⁰ Seeking to mitigate the cost impact from the BCA, the utilities exercised their political influence to obtain free allocation. The industry representative highlighted the sector’s political influence in obtaining free allocation: “The utilities stepped in and started wielding [their] political clout [to] ensure free and continued allocation of allowances. We did not want to have to come back every year and ask for more allowances.”²⁷¹ The academic literature also highlights the utilities’ influence in shaping aspects of the cap-and-trade program design, in particular those of free allocation and auctioning.²⁷²

Nevertheless, following the adoption of the cap-and-trade program, a group of major utilities that imported a large share of electricity from greenhouse gas intensive generators renewed its opposition to the BCA on imports of electricity. Although they had secured compensation in the form of free allocation, these utilities saw an opportunity to minimize costs further by reducing their compliance obligation from imported electricity. Importantly, when AB 32 was passed into law, its requirement to reduce emissions from imported electricity was yet to be operationalized. Once the BCA on imports of electricity was adopted, however, these utilities criticized the prohibition of resource shuffling that was

²⁶⁹ *Ibid.* For details on the free allocation for utilities, see part 5.2, above.

²⁷⁰ *Ibid.*

²⁷¹ *Ibid.*

²⁷² See Bang, Victor & Andresen, *supra* note 250 at 23-24.

included in the initial program design for failing to clearly define resource shuffling and thus for creating regulatory ambiguity.²⁷³ Therefore, the opposition from major utilities manifested itself in efforts to weaken the BCA by combatting the prohibition of resource shuffling.

As their interventions at public meetings of the ARB show, several major utilities strongly supported the exemptions that weakened the BCA. For instance, SCE voiced its support for adopting exemptions to resource shuffling at a public meeting of the ARB in October 2012.²⁷⁴ At the same meeting, LADWP and SCPPA, which represents LADWP and other municipal utilities in Southern California, also voiced their support for doing so.²⁷⁵ At the ARB's public meeting in April 2014, SCE reiterated its support for the adoption of the exemptions.²⁷⁶ What is more, it was, in fact, a group of utilities that essentially drafted the exemptions.²⁷⁷ PG&E, SDGE, and SCE put forward a list of market behaviours that would be covered by the exemptions that the ARB adopted subsequently.²⁷⁸ Significantly, these utilities supplied the vast majority of electricity consumed in California, which explains their political influence. In 2012, for instance, the four largest utilities in California – SCE, PG&E, LADWP, and SDGE – supplied more than 80% of electricity consumed in the state.²⁷⁹

The evidence shows that this political opposition, driven by concerns about regulatory ambiguity and the BCA's effectiveness in achieving emissions reductions,²⁸⁰ led to the adoption of the exemptions that weakened the BCA. According to several interviewees, efforts by the major utilities were crucial in the process that led to this outcome. Seeking

²⁷³ See section 5.6.2.2, above.

²⁷⁴ US, California Air Resources Board, *Transcript of Public Board Meeting of 18 October 2012* (2012), online: ARB <<https://www.arb.ca.gov/>> (retrieved 22 June 2018) at 115.

²⁷⁵ *Ibid* at 122, 124, 129.

²⁷⁶ US, California Air Resources Board, *Transcript of Public Board Meeting of 25 April 2014* (2014), online: ARB <<https://www.arb.ca.gov/>> (retrieved 22 June 2018) at 113.

²⁷⁷ Interviews of an industry representative (30 October 2017), Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017), and Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁷⁸ See section 5.6.2.3, above.

²⁷⁹ See US, California Energy Commission, *California Load Serving Entity (LSE) Peak Load and Energy Requirements* (6-21-2016) (2016).

²⁸⁰ See section 5.6.2, above.

more regulatory clarity, they voiced their concerns to FERC, which prompted the letter by one of its commissioners. Following this letter, the ARB received “a very strong signal from Governor Brown” that the approach to resource shuffling needed to be reviewed.²⁸¹ An industry representative also confirmed that efforts by the major utilities led the ARB to adopt the exemptions and the interviewee elaborated: “Why [the exemptions] were passed [into law] is because utilities basically said ‘We are not moving an inch. We are literally doing nothing until [policy-makers] determine that this will not harm us.’ That was it. It was basically a political battle.”²⁸² The academic literature also indicates that this political opposition was crucial. Bang, Victor, and Andresen indicate that the utilities were highly attentive to the issue of resource shuffling and that the exemptions were “caused by compromises between [the ARB] and the utility sector.”²⁸³

It appears unlikely that the opposition from major utilities would have been successful in weakening the BCA in the absence of concerns about regulatory ambiguity and the BCA’s effectiveness in achieving emissions reductions, at least not to the same extent they were able to given these concerns. At the same time, it appears equally unlikely that policy-makers would have adopted the exemptions that weakened the BCA had it not been for the political opposition from the group of major utilities.

To summarize, although there was opposition to the BCA on imports of electricity from the utilities, this opposition faced a strong coalition consisting of policy-makers and NGOs that was keen on putting in place an environmentally ambitious cap-and-trade program. The coalition was able to overcome the opposition initially by promising the utilities free allocation to alleviate the cost impact on ratepayers. Following the adoption of the cap-and-trade program, however, a group of major utilities that imported a large share of electricity from greenhouse gas intensive generators renewed its opposition to the BCA. Seeing an opportunity to minimize costs further by reducing their compliance obligation from imported electricity, they combatted the prohibition of resource shuffling. This opposition led to the

²⁸¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁸² Interview of an industry representative (30 October 2017).

²⁸³ Bang, Victor & Andresen, *supra* note 250 at 24-25.

adoption of the exemptions that weakened the BCA. Therefore, while policy-makers were initially able to overcome opposition from the utilities sector and introduce the BCA, opposition from a group of major utilities subsequently led to the adoption of the exemptions that weakened the BCA. As a result, domestic political opposition explains the latter policy outcome.

5.8 Conclusion

This chapter studied California's experience with including electricity imports in its cap-and-trade program, which offers a rare example of an adopted form of BCA. In 2011, the ARB adopted California's cap-and-trade program, which included a BCA on imports of electricity to account for the fact that imports are responsible for a significant share of emissions from California's electricity consumption. However, the ARB subsequently adopted exemptions that weakened the BCA and are likely to cause significant carbon leakage. As a result, the BCA never became effective as originally intended but only in a weakened form. This chapter examined the factors leading to the adoption of the BCA and its subsequent weakening.

Although imports of electricity have been included from the start of the cap-and-trade program, policy-makers have been struggling to prevent market participants from circumventing the compliance obligation for imported electricity through resource shuffling, which is a form of carbon leakage that results in the false appearance of emissions reductions. In fact, policy-makers were aware of concerns about resource shuffling before the adoption of the BCA, but they were confident that these concerns could be addressed during the implementation of the measure. However, policy-makers were not able to overcome these concerns after all. While a strong coalition of policy-makers and NGOs was able to fend off opposition to the BCA initially, the evidence shows that political opposition from a group of major utilities, driven by concerns about regulatory ambiguity and the BCA's effectiveness in achieving emissions reductions, led the ARB to adopt the exemptions that weakened the BCA.

Following the adoption of the BCA, a group of major utilities criticized the prohibition of resource shuffling that was included in the initial program design on the grounds that it

created regulatory ambiguity. Their requests for clarification led policy-makers to adopt a list of exemptions that had previously been prohibited as resource shuffling but were henceforth deemed legal. Existing research shows that the exemptions are so permissive that they likely cause significant carbon leakage. Therefore, although policy-makers sought to prevent resource shuffling, it became clear that their initial approach created regulatory ambiguity. Conversely, while the revised approach using the exemptions created regulatory clarity, it was unable to prevent resource shuffling. The exemptions weakened the BCA on imports of electricity by undermining its effectiveness in achieving emissions reductions. In fact, because unused allowances created through resource shuffling can be sold to market participants in other sectors, the exemptions provide an outlet for carbon leakage beyond the electricity sector and thus put at risk the environmental integrity of the entire cap-and-trade program.

By contrast, there were no concerns about WTO law or the DCC among policy-makers that presented obstacles to the adoption of the BCA or could explain its subsequent weakening. Likewise, there were no fears of repercussions for international or US state-level relations, no preferences for alternative measures, or any practical concerns about the administrative complexity of implementing and administering the BCA that could explain these policy outcomes. However, there are indications that opponents of the BCA might have alleged concerns about the DCC to reinforce their opposition, despite legal experts' assertions and other evidence to the contrary.

California's experience with applying a BCA on imports of electricity in its cap-and-trade program suggests that the extent to which market participants are able to circumvent a BCA, thereby compromising its effectiveness, may only become evident after the adoption of such a measure. California's struggle to prevent market participants from circumventing the compliance obligation for imports of electricity may also reflect any one jurisdiction's limited leverage over regulating emissions in foreign markets. More generally, this case illustrates the limits of implementing a BCA in practice.

The next chapter studies BCAs for industrial facilities in California's cap-and-trade program, which have not been applied in the system despite having received some degree of attention over the years.

6 Border Carbon Adjustments for Industrial Facilities in California's Cap-and-Trade Program

6.1 Introduction

This chapter examines California's experience with BCAs for industrial facilities in its cap-and-trade program, which has been in operation since 2013. BCAs for industrial facilities, or manufacturing industries, such as cement and oil refining, have received some degree of attention in California over the years. But the state has not applied any such measures in its cap-and-trade program to date. By testing empirically the potential barriers to BCAs that were set out in chapter 2, this case study aims to determine the factors that led to this policy outcome.

This case study finds that overwhelming opposition to BCAs for industrial facilities in combination with limited demand for these measures explains their absence in California's cap-and-trade program. In fact, industry stakeholders preferred free allocation to BCAs for industrial facilities. There are several reasons for this preference. For one, this is due to corporate structures and industrial supply chains that extend beyond California. Because industries covered by the cap-and-trade program also have operations outside of California, a BCA for industrial facilities would impose a carbon price on their exports into the state. Furthermore, the ability of free allocation to limit increases in downstream product prices appealed to industry stakeholders. This effect also appealed to policy-makers for political reasons because they sought to avoid making the costs of California's climate policies visible to voters.

Perhaps the most important reason why industry stakeholders preferred free allocation to BCAs for industrial facilities is found in the generosity and ensuing inertia of free allocation. By introducing free allocation at overgenerous levels, policy-makers created a vested interest among industry stakeholders both in cap-and-trade and free allocation itself. Subsequently, both the recipients of free allocation and policy-makers had incentives to maintain the status quo. Given the enormous financial value of these free allowances, industry stakeholders, particularly the principal beneficiaries of the oil and gas industry and the cement industry,

did not want to risk losing the free allocation of allowances. Industry stakeholders also preferred a known, existing system to address carbon leakage through free allocation and resisted a change to an unknown approach using BCAs. Policy-makers, invested in their system of free allocation and cognizant of the political advantages of free allocation, similarly resisted such a change. As a result, the ensuing economic, political, and institutional inertia of free allocation created a path dependency that led to the perpetuation of free allocation.

California's experience with BCAs for industrial facilities in its cap-and-trade program shows that these measures may face considerable opposition from industry stakeholders, impeding any attempts from supporters to introduce them. What is more, the generosity with free allocation and its powerful inertia may lead to the continued use of this alternative measure at the expense of BCAs for industrial facilities.

Interviews with 17 individuals informed this case study. This includes four government officials, four industry representatives, one representative of the environmental community, one cap-and-trade market expert, six academics, and one anonymous source. Seven individuals were consulted in person in Sacramento, California, in October 2017, while 10 interviews were conducted over the phone between October and November 2017.

The remainder of this chapter proceeds as follows. Part 6.2 offers a chronological overview and presents the main design parameters of California's cap-and-trade program as it applies to industrial facilities.¹ Parts 6.3 to 6.7 examine why no BCAs for industrial facilities have been adopted in this case, specifically whether this is due to concerns about WTO law or the US DCC (part 6.3), practical concerns about the administrative complexity of BCAs for industrial facilities or their effectiveness in countering carbon leakage (part 6.4), concerns about repercussions for international or US state-level relations (part 6.5), a preference for alternative measures (part 6.6), or domestic political opposition (part 6.7). Part 6.8 concludes by summarizing the case study's findings.

¹ For additional information on the development of California's climate policy framework, the state's emissions targets, and the electricity sector under the state's cap-and-trade program, see chapter 5.

6.2 Chronological Overview and Policy Details

In September 2006, Governor Arnold Schwarzenegger signed AB 32, a landmark bill that directed the ARB to adopt policies to achieve California's 2020 emission reduction target of reducing the state's emissions to 1990 levels.² Two years later, in December 2008, the ARB adopted a scoping plan proposing a suite of policies to achieve that target, which included the proposal to develop a cap-and-trade program.³ In October 2010, the ARB released the draft design of its cap-and-trade program,⁴ and it adopted it in October 2011.⁵ The compliance obligation under California's cap-and-trade program began to take effect in January 2013. In July 2017, Governor Jerry Brown signed AB 398, which extended the cap-and-trade program through 2030.⁶

Since its launch in 2013, the cap-and-trade program has included the electricity sector and large industrial facilities. During its first two years, the cap-and-trade program covered some 250 compliance entities.⁷ In 2013, the system's cap was 163 Mt CO₂-eq.⁸ Around half of the allowances in the cap-and-trade program are allocated free of charge, with the other

² US, AB 32, *An Act to Add Division 25.5 (Commencing with Section 38500) to the Health and Safety Code, Relating to Air Pollution*, 2005-06, Reg Sess, Cal, 2006 (enacted); "Gov. Schwarzenegger Signs GHG Bill", *E&E News* (27 September 2006), online: E&E News <<https://www.eenews.net/>>.

³ US, California Air Resources Board, *Climate Change Scoping Plan: A Framework for Change* (December 2008), online: ARB <<https://www.arb.ca.gov/>> (retrieved 7 May 2018) [ARB, "Scoping Plan"]; "Calif. Air Board Approves Greenhouse Gas Plan", *E&E News* (11 December 2008), online: E&E News <<https://www.eenews.net/>>.

⁴ Debra Kahn, "California Reveals Terms of Nation's First Economywide CO₂ Cap-and-Trade System", *E&E News* (1 November 2010), online: E&E News <<https://www.eenews.net/>>.

⁵ US, Cal Code Regs tit 17 §§ 95801-96022 (2011); Felicity Barringer, "California Adopts Limits on Greenhouse Gases", *The New York Times* (20 October 2011), online: The New York Times <<http://www.nytimes.com/>>.

⁶ US, AB 398, *California Global Warming Solutions Act of 2006: Market-Based Compliance Mechanisms: Fire Prevention Fees: Sales and Use Tax Manufacturing Exemption*, 2017-18, Reg Sess, Cal, 2017 (enacted); Debra Kahn, "Cap-and-Trade Signing Features Schwarzenegger, Back-Patting", *E&E News* (26 July 2017), online: E&E News <<https://www.eenews.net/>> [Kahn, "Cap-and-Trade Signing"].

⁷ See US, California Air Resources Board, *2013-2014 Compliance Obligation Detail for ARB's Cap-and-Trade Program* (2016), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 July 2018).

⁸ US, Cal Code Regs tit 17 § 95841 (2011).

half offered at auctions.⁹ Industrial facilities receive around a third of the free allowances,¹⁰ which are allocated based on greenhouse gas performance benchmarks.¹¹

In contrast to the electricity sector, California has not applied any BCAs for industrial facilities in its cap-and-trade program.¹² However, BCAs for industrial facilities have received some degree of attention by policy-makers and stakeholders in California over the years. In fact, “the border adjustment conversation [in California] has been going on since the inception of [the state’s] cap-and-trade [program].”¹³ In December 2010, the ARB directed its staff to consider a BCA on imports of cement “as a pilot project,” specifically to “review the technical and legal issues (...) and to implement such a provision (...) if it is necessary to avoid leakage.”¹⁴ In February 2014, the ARB held a public meeting in which it discussed with stakeholders in detail the design options of a BCA on imports of cement.¹⁵ In July 2017, AB 398 introduced a provision for the ARB to report to the state legislature by the end of 2025 on “necessary statutory changes to the [cap-and-trade] program to reduce leakage, including the potential for a border carbon adjustment.”¹⁶ Nevertheless, other than in the electricity sector, the ARB has not put in place any BCAs in its cap-and-trade program to date.

Most recently, discussions of BCAs for industrial facilities took place in the context of the extension of the cap-and-trade program through 2030. In May 2017, supported by Senate President Pro Tempore de León, State Senator Wieckowski introduced SB 775, which

⁹ US, California Legislative Analyst’s Office, *Evaluating the Policy Trade-Offs in ARB’s Cap-and-Trade Program* (9 February 2012) at 10.

¹⁰ *Ibid.*

¹¹ US, Cal Code Regs tit 17 § 95891 (2011).

¹² In the electricity sector, California’s cap-and-trade program applies a form of BCA on imports of electricity; see chapter 5.

¹³ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

¹⁴ US, California Air Resources Board, *Resolution 10-42* (16 December 2010) at 4, 11 [ARB, *Resolution 10-42*].

¹⁵ See US, California Air Resources Board, *Potential Border Carbon Adjustment for the Cement Sector* (5 February 2014), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 March 2018) [ARB, “BCA for Cement”].

¹⁶ US, Cal Health and Safety Code § 38562(c)(2)(I) (2017).

proposed a series of significant changes to the cap-and-trade program starting in 2021.¹⁷ The bill foresaw, *inter alia*, full auctioning, and thus no more free allocation, and BCAs for industrial facilities.¹⁸ In fact, although SB 775 was not passed into law, it influenced the compromise that policy-makers and stakeholders struck in AB 398 later that summer. Specifically, AB 398's provision requiring the ARB to evaluate BCAs by the end of 2025 represents a "super watered-down version" of SB 775's mandated use of BCAs for industrial facilities.¹⁹ Therefore, AB 398's provision on BCAs is "something that survived" from SB 775.²⁰

The political discourse on BCAs for industrial facilities in California focused almost exclusively on imports. In fact, several interviewees confirmed that BCAs for industrial facilities on exports were absent from the discussions.²¹ For instance, upon release of the cap-and-trade program's initial design, the ARB briefly discussed BCAs for industrial facilities, but only concerning imports.²² Likewise, both when the ARB directed its staff to

¹⁷ Debra Kahn, "Senate Leader Proposes Big Changes to Carbon-Pricing Program", *E&E News* (2 May 2017), online: E&E News <<https://www.eenews.net/>> [Kahn, "Senate Leader Proposes Big Changes"]].

¹⁸ SB 775 further envisioned no carry-over of allowances from before 2021, no offsets, a price collar, and cutting existing linkages with other cap-and-trade programs; see *ibid*; Debra Kahn, "Lawmakers Ponder Big Changes to Climate Program", *E&E News* (11 May 2017), online: E&E News <<https://www.eenews.net/>>; Debra Kahn & Anne C Mulkern, "Fights for Climate Rules Mount Within State, Against Trump", *E&E News* (23 May 2017), online: E&E News <<https://www.eenews.net/>>.

¹⁹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017). An earlier version of this provision that was circulated just a few weeks before AB 398 was agreed illustrates how the provision was watered down in the negotiations. This earlier version reads as follows: "By January 1, 2019, the state board shall evaluate a border carbon adjustment mechanism for petroleum refining and hydrogen production, cement manufacturing, and crude petroleum and natural gas extraction in lieu of allowance allocation for industry assistance." See Debra Kahn, "Brown and Lawmakers Haggles Over Details of Carbon Market", *E&E News* (10 July 2017), online: E&E News <<https://www.eenews.net/>>.

²⁰ Interview of an industry spokesperson (17 October 2017); also interviews of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017), Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017), a representative of the environmental community (16 November 2017), a cap-and-trade market expert (29 November 2017), Michael Wara, Professor of Law, Stanford University (31 October 2017), an academic (2 November 2017), and an anonymous source (9 November 2017); see also Debra Kahn, "Greens See Oil Industry Fingerprints on Climate Legislation", *E&E News* (30 June 2017), online: E&E News <<https://www.eenews.net/>>.

²¹ Interviews of an industry spokesperson (17 October 2017), an industry spokesperson (19 October 2017), a representative of the environmental community (16 November 2017), Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017), and an anonymous source (9 November 2017).

²² See US, California Air Resources Board, *Proposed Regulation to Implement the California Cap-and-Trade Program, Staff Report: Initial Statement of Reasons* (28 October 2010), online: ARB <<https://www.arb.ca.gov/>> (retrieved 7 March 2018) at IV-8-IV-9 [ARB, "ISoR"].

consider a BCA for the cement industry and when it discussed such a BCA in a public meeting, it only referred to imports.²³ As an exception, when SB 775 was introduced in the California State Senate, the BCAs for industrial facilities proposed as part of that bill were foreseen for both imports and exports.²⁴ Lastly, AB 398's provision requiring the ARB to evaluate BCAs neither contained a reference to imports nor to exports.²⁵ The predominant focus on imports may be a reflection of California's highly import-oriented economy.²⁶ Furthermore, policy-makers likely sought to maximize the environmental effectiveness of the cap-and-trade program by covering emissions associated with industrial production regardless of whether that output would be consumed in- or out-of-state.²⁷

It should be noted that suppliers of transportation fuels have a compliance obligation under the cap-and-trade program since January 2015, which applies to both fuels produced in-state and imported from out-of-state.²⁸ However, fuel suppliers' compliance obligation does not capture the emissions released during the production of the fuels but relates only to the emissions from their combustion, which occurs predominantly in-state.²⁹ Because it does not extend the carbon price beyond the domestic domain, the compliance obligation on imports of transportation fuels does not amount to a BCA.

Outside of its cap-and-trade program, California includes imports of transportation fuels as part of a policy instrument that preceded cap-and-trade. The state includes both in-state producers and importers of transportation fuels in its low-carbon fuel standard (LCFS)

²³ See ARB, *Resolution 10-42*, *supra* note 14 at 4, 11; ARB, "BCA for Cement", *supra* note 15.

²⁴ See US, SB 775, *An Act to Amend Section 12894 of, and to Add Section 16428.87 to, the Government Code, and to Amend Section 38505 of, to Add Section 38574.5 to, and to Add Part 5.5 (Commencing With Section 38575) and Part 5.6 (Commencing With Section 38577) to Division 25.5 of, the Health and Safety Code, Relating to Greenhouse Gases, and Declaring the Urgency Thereof, to Take Effect Immediately*, 2017-18, Reg Sess, Cal, 2017 at § 38575(b)(7).

²⁵ See US, Cal Health and Safety Code § 38562(c)(2)(I) (2017).

²⁶ See section 5.4.1.2, above.

²⁷ Interview of a cap-and-trade market expert (29 November 2017).

²⁸ US, Cal Code Regs tit 17 §§ 95811(c)-(g), 95851(b) (2011).

²⁹ See US, Cal Code Regs tit 17 §§ 95852(c)-(f), (l) (2011). Note that the compliance obligation for industrial facilities covers the emissions from in-state production of fuels, namely extraction and refining; see US, Cal Code Regs tit 17 §§ 95811(a), 95852(a) (2011).

program.³⁰ The LCFS, which was adopted in April 2009 and began to levy its compliance obligation in January 2011,³¹ seeks to reduce the life cycle emissions of transportation fuels consumed in California, including the emissions during the production, transportation, and use of these fuels.³²

In summary, the ARB adopted California's cap-and-trade program in 2011 and the system's compliance obligation began to take effect in 2013. In contrast to the electricity sector, and although BCAs for industrial facilities have received some degree of attention in California over the years, the state has not applied any BCAs for industrial facilities under its cap-and-trade program. The following parts consider the reasons behind this policy outcome.

6.3 Concerns about WTO Law or the US Dormant Commerce Clause

This part examines whether policy-makers had any concerns related to WTO law (section 6.3.1) or the DCC (section 6.3.2) that led to the absence of BCAs for industrial facilities in California's cap-and-trade program. As will be shown, neither WTO law nor the DCC can explain the policy outcome.

6.3.1 Concerns about WTO Law

WTO law becomes relevant where a BCA for industrial facilities would cover products traded between California and other jurisdictions that are WTO members.³³ In the case of the cement industry, for instance, a significant volume of imports is shipped to California from Asia, primarily from China. Between 2007 and 2015, 69% (4.2m tonnes) of cement imports

³⁰ See US, Cal Code Regs tit 17 § 95483 (2010).

³¹ See Debra Kahn, "Calif. Regulators Adopt Low-Carbon Fuel Standard", *E&E News* (24 April 2009), online: E&E News <<https://www.eenews.net/>>; US, Cal Code Regs tit 17 § 95484(a) (2010).

³² See US, Cal Code Regs tit 17 §§ 95480, 95481(a)(49) (2010).

³³ See e.g. Clayton Munnings et al, "Pricing Carbon Consumption: A Review of an Emerging Trend" (2016) Resources for the Future, Discussion Paper 16-49 at 28, who note that BCAs "must be carefully designed to comply with relevant laws (e.g., the [DCC] in California or the WTO if trade occurs between countries), since they effectively regulate imports."

to California came from China, 18% (1.0m tonnes) from Taiwan, and 7% (0.4m tonnes) from Thailand.³⁴

As described in chapter 2, a substantial body of literature exists that addresses the compliance of BCAs with the rules of the WTO.³⁵ Although designing BCAs to be WTO-compliant may not be a trivial exercise, leading experts in this area of law indicate that BCAs can indeed be designed to be WTO-compliant. Furthermore, even if BCAs were to be found illegal by a WTO panel, the legal consequences are relatively limited.

During the design phase of the cap-and-trade program, a group of economists that advised the ARB indicated that BCAs are “more likely to be found to violate [WTO] rules than [free] allocation, according to most observers.”³⁶ Upon release of the cap-and-trade program’s initial design, the ARB cited some concerns about WTO law among other reasons against BCAs for industrial facilities:

Staff chose not to extend the first deliverer approach to include entities that import non-electricity goods into California from out-of-state because of potentially significant (...) legal challenges. (...) The application of border adjustments to interstate and international trade would also face legal scrutiny under the Commerce Clause and World Trade Organization principles.³⁷

At the same time, the ARB noted an “increasing consensus in the international community that border adjustments may be implemented in a manner compatible with WTO requirements” and that the ARB “believes that the legal concern regarding international trade principles may be overcome in the near future.”³⁸ Nevertheless, the ARB stated that it chose

³⁴ 6% (0.4m tonnes) of cement imports were imported from other parts of the world. Data provided via e-mail from Brian Schmidt, Portland Cement Association (15 August 2018).

³⁵ See section 2.3.1, above.

³⁶ Economic and Allocation Advisory Committee, “Allocating Emissions Allowances Under a California Cap-and-Trade Program: Recommendations to the California Air Resources Board and California Environmental Protection Agency” (March 2010), online: EAAC <<http://www.climatechange.ca.gov/eaac/>> (retrieved 22 September 2017) at 18, n 21.

³⁷ ARB, “ISoR”, *supra* note 22 at IV-8; see also *ibid* at K-33.

³⁸ *Ibid* at IV-8, n 54, K-33.

free allocation instead of BCAs for industrial facilities “because border adjustments are still associated with significant uncertainty.”³⁹

Other evidence, however, does not support these alleged concerns about WTO law. For example, when the ARB held a public meeting with stakeholders to discuss a BCA on imports of cement, a presentation the ARB delivered included detailed design options for such a BCA, but did not contain any information on WTO law.⁴⁰ This suggests that the ARB considered it at least possible that WTO law did, in fact, not present an obstacle to the introduction of such a BCA.

Indeed, it emerged through interviews that the ARB discussed the compliance of its cap-and-trade program with WTO law both internally and with stakeholders, produced internal documents assessing that question, and concluded that WTO law did not pose an insurmountable obstacle. An anonymous source confirmed that the ARB had “extensive discussions” with stakeholders on this question, carried out internal legal analysis, and consulted academic experts from the Georgetown Law School, who assured that BCAs could be designed to be WTO-compliant.⁴¹

Furthermore, policy-makers from the California State Senate who drafted SB 775, which foresaw BCAs for industrial facilities, carefully designed the bill to be “legally resilient” and “maximally defensible” under WTO law.⁴² The authors of the bill consulted “WTO lawyers, scholars, legal academics who work on exactly this question [of BCAs]” and who “have written the most-widely cited work on [BCA] law in the WTO context.”⁴³ Also the Coalition for Sustainable Cement Manufacturing & Environment (CSCME), which is an industry association representing the cement sector, noted that it “conducted in-depth (...) WTO analysis of various options for implementing effective border measures that would

³⁹ *Ibid* at K-33; also *ibid* at IV-8, n 54.

⁴⁰ See ARB, “BCA for Cement”, *supra* note 15.

⁴¹ Interview of an anonymous source (9 November 2017).

⁴² David Roberts, “California Is About to Revolutionize Climate Policy... Again”, *Vox* (3 May 2017), online: *Vox* <<https://www.vox.com/>> [Roberts, “California Is About to Revolutionize”]; interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

⁴³ *Ibid*; also interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

maximize the likelihood of surviving [legal] scrutiny”⁴⁴ and that it had “specific design proposals that would meet [the requirements of WTO law],” which it offered to share with policy-makers.⁴⁵

In the related case of California’s BCA on imports of electricity, no legal action has been brought under the WTO to date.⁴⁶ Likewise, no WTO case has been brought to challenge the state’s LCFS, which similarly applies a compliance obligation on imports of transportation fuels since 2011,⁴⁷ despite aggressive rhetoric from the Canadian government that suggested it could bring a case.⁴⁸

In fact, there are indications that opponents of BCAs for industrial facilities might have alleged concerns about WTO law to reinforce their opposition. Indeed, such concerns could be used as a smoke screen and to cast doubt on whether the WTO-compliant design of BCAs is possible, against assertions to the contrary from legal experts. For instance, although the ARB cited concerns about WTO law in government documents, there is evidence that WTO law did not present an obstacle to the introduction of BCAs for industrial facilities. In addition, the ARB concluded that WTO law did not present an obstacle to the introduction of the BCA on imports of electricity, and considerations of WTO law related to electricity are unlikely to differ compared to those for industrial facilities, particularly given the fact that, just like industrial products, electricity is considered a good under WTO law.⁴⁹ Moreover, the

⁴⁴ Coalition for Sustainable Cement Manufacturing & Environment, Letter from Chairman John T. Bloom, Jr. to California Air Resources Board Chair Mary Nichols (7 June 2010) at 11 [Letter from CSCME to ARB].

⁴⁵ Coalition for Sustainable Cement Manufacturing & Environment, Letter from Chairman John T. Bloom, Jr. to Economic and Allocation Advisory Committee Chair Larry Goulder (14 December 2009) at 6 [Letter from CSCME to EAAC in 2009].

⁴⁶ See section 5.3.1, above.

⁴⁷ See part 6.2, above.

⁴⁸ See Ellen Gould, “First, Do No Harm: The Doha Round and Climate Change” (2010) Canadian Centre for Policy Alternatives, Briefing Paper at 5; also interview of a representative of the environmental community (16 November 2017); see also “Federal Government Prepares \$24-Million Oil Sands Advertising Blitz”, *Financial Post* (11 October 2013), online: Financial Post <<http://www.financialpost.com/>>.

⁴⁹ See section 5.3.1, above.

ARB has included imports of transportation fuels as part of its LCFS without citing any concerns about WTO law.⁵⁰

In summary, although the ARB cited some concerns about WTO law in government documents, the ARB assessed the compliance of BCAs for industrial facilities with WTO law and did not consider it to be an obstacle to the introduction of such measures. However, there are indications that some opponents of BCAs for industrial facilities might have alleged concerns about WTO law to reinforce their opposition, despite legal experts' assertions to the contrary. In addition, while the WTO-compliant design of BCAs is possible, the level of effort required to achieve compliance is unclear. Nevertheless, the evidence indicates that questions about WTO law did not prevent policy-makers from pursuing BCAs for industrial facilities.

6.3.2 Concerns about the US Dormant Commerce Clause

The DCC is a constitutional principle that seeks to prevent US states from enacting protectionist policies vis-à-vis other US states.⁵¹ Therefore, the DCC becomes relevant where a BCA for industrial facilities would cover products traded between California and other US states.⁵² In contrast to international trade, data on interstate trade flows is not available.⁵³ Consequently, it is not possible to quantify the number of imports into California from other US states. Nevertheless, perhaps unsurprisingly for a subnational jurisdiction, the question of

⁵⁰ See US, California Air Resources Board, *Proposed Regulation to Implement the Low Carbon Fuel Standard, Staff Report: Initial Statement of Reasons* (5 March 2009), online: ARB <<https://www.arb.ca.gov/>> (retrieved 21 August 2018) [ARB, "LCFS ISoR"].

⁵¹ See Erwin Chemerinsky et al, "California, Climate Change, and the Constitution" (2007) 37:9 *Environmental Law Reporter* 10653 at 10656.

⁵² See e.g. Munnings et al, *supra* note 33 at 28, who note that BCAs "must be carefully designed to comply with relevant laws (e.g., the [DCC] in California or the WTO if trade occurs between countries), since they effectively regulate imports." See also Economic and Allocation Advisory Committee, *supra* note 36 at 18, who note that "the test for California with respect to goods produced in other US states would be the [DCC]."

⁵³ See US, International Trade Administration, "State Import Data", online: ITA <<https://www.trade.gov/>> (retrieved 3 May 2018) [ITA], who note that "the trade data do not provide information to track or monitor interstate flows"; also e-mail from Brian Schmidt, Portland Cement Association (15 August 2018); interview of an academic (2 November 2017). An exception to this is the interstate trade of electricity, for which data is available; see chapter 5.

DCC-compliance appears to bear higher relevance in discussions of BCAs in California than concerns about WTO law.⁵⁴

As indicated in chapter 5, a body of academic literature addresses the compliance of state-level climate policy with the DCC. While the literature offers no measure of the level of effort required and the legality ultimately depends on the specific policy design, it appears that the DCC-compliant design of BCAs is possible.⁵⁵

When the ARB released the cap-and-trade program's initial design, it noted that BCAs "may be prohibited under the [DCC],"⁵⁶ and cited such concerns among other reasons against BCAs for industrial facilities.⁵⁷ As with WTO law,⁵⁸ however, other evidence does not support these alleged concerns about the DCC. At a public stakeholder meeting on the topic of a BCA on imports of cement, the ARB discussed presented detailed design options but no information on the DCC.⁵⁹ This suggests that the ARB may not have regarded the DCC to present an obstacle to introducing such a BCA.

In fact, interviews revealed that questions about the DCC-compliance of BCAs for industrial facilities did not prevent the ARB from pursuing such measures. According to an anonymous source, the ARB thoroughly considered not only WTO law but also the DCC, had "extensive discussions" with stakeholders on this topic, prepared internal legal documents, and sought advice from academic experts, who assured that BCAs could be designed in compliance with the DCC.⁶⁰

Furthermore, when policy-makers from the California State Senate drafted SB 775, which included BCAs for industrial facilities, they consulted several legal experts, including "attorneys with real-world experience litigating [DCC] claims before the Supreme Court,"

⁵⁴ Interview of a representative of the environmental community (16 November 2017).

⁵⁵ See section 5.3.2, above.

⁵⁶ ARB, "ISoR", *supra* note 22 at K-33.

⁵⁷ *Ibid* at IV-8.

⁵⁸ See section 6.3.1, above.

⁵⁹ See ARB, "BCA for Cement", *supra* note 15.

⁶⁰ Interview of an anonymous source (9 November 2017).

and consciously designed the bill to be DCC-compliant.⁶¹ Also a staffer from the California State Senate indicated an eagerness “to make sure the bill was defensible in the courts” and emphasized his conviction that the DCC-compliant design of BCAs for industrial facilities was possible.⁶² In fact, the interviewee did not think that “they considered the legal underpinnings [related to the DCC] in the governor’s office,”⁶³ which suggests that the opposition from the governor’s office to SB 775 was not due to concerns about the DCC.

Moreover, also the cement industry association CSCME noted that it “conducted in-depth constitutional (...) analysis of various options for implementing effective border measures that would maximize the likelihood of surviving [legal] scrutiny”⁶⁴ and that it had “specific design proposals that would meet [the requirements of the DCC],” which it offered to share with policy-makers.⁶⁵

Additionally, in the case of the BCA on imports of electricity, government documents and evidence from interviews indicate that that measure is likely to be DCC-compliant and the ARB was confident it would withstand a challenge under the DCC.⁶⁶ Importantly, it appears unlikely that the DCC-compliance of BCAs for industrial facilities fundamentally differs from that of a BCA on imports of electricity. No case has been brought to challenge the BCA on imports of electricity under the DCC to date. What is more, California’s LCFS, which has included imports of transportation fuels since 2011, was litigated and ultimately upheld as DCC-compliant in court.⁶⁷

In fact, as with WTO law,⁶⁸ there are indications that opponents of BCAs for industrial facilities alleged concerns about the DCC to reinforce their opposition. For instance,

⁶¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017); also interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017); Roberts, “California Is About to Revolutionize”, *supra* note 42.

⁶² Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

⁶³ *Ibid.*

⁶⁴ Letter from CSCME to ARB, *supra* note 44 at 11.

⁶⁵ Letter from CSCME to EAAC in 2009, *supra* note 45 at 6.

⁶⁶ See section 5.3.2, above.

⁶⁷ See *ibid.*

⁶⁸ See section 6.3.1, above.

although the ARB cited concerns about the DCC in government documents, there is evidence that the DCC did not present an obstacle to the introduction of BCAs for industrial facilities. In addition, the ARB has included imports of transportation fuels as part of its LCFS without citing any concerns about the DCC.⁶⁹

Also industry stakeholders opposing BCAs for industrial facilities likely alleged concerns about the DCC to reinforce their opposition. Indeed, as an academic noted, those “who were opposed to the concept [of BCAs] cited the perception of legal risks.”⁷⁰ For instance, when asked about the industry’s position on BCAs for industrial facilities, an industry spokesperson began by stating that “Our reaction has always been: ‘Is it going to be legal?’” before adding further reasons against BCAs.⁷¹ These concerns seemed to disappear, however, when the interviewee contended that using BCAs on imports from other US states might be “easy enough to track” if needed to equalize carbon prices between California’s cap-and-trade program and any possible future carbon-pricing policies in other US states.⁷² Similarly, another industry spokesperson brought forward concerns about the DCC and asserted that policy-makers would not prevail on this question in court.⁷³ However, other evidence does not support this claim. Tellingly, the interviewee noted in the same instance the availability of “other avenues” to counter carbon leakage besides BCAs, thus indicating a preference for free allocation.⁷⁴

To summarize, although the ARB cited some concerns about the DCC in government documents, it assessed the compliance of BCAs for industrial facilities with the DCC and did not consider it to be an obstacle to introducing such measures. However, as with WTO law, there are indications that some opponents of BCAs for industrial facilities might have alleged concerns about the DCC to reinforce their opposition, despite legal experts’ assertions to the contrary. While the level of effort required to design BCAs in compliance with the DCC is

⁶⁹ See ARB, “LCFS ISoR”, *supra* note 50.

⁷⁰ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

⁷¹ Interview of an industry spokesperson (17 October 2017). These further reasons the interviewee cited are discussed in other parts of this chapter.

⁷² *Ibid.*

⁷³ Interview of an industry spokesperson (19 October 2017).

⁷⁴ For details on preferences for free allocation, see part 6.6, below.

unclear, the evidence indicates that concerns about the DCC do not explain the policy outcome.

6.4 Practical Concerns

This part examines whether policy-makers faced any practical difficulties that led to the absence of BCAs for industrial facilities in California’s cap-and-trade program. The discussion first addresses potential concerns about the administrative complexity of implementing and administering BCAs for industrial facilities (section 6.4.1) before turning to potential concerns regarding the effectiveness of these measures in countering carbon leakage (section 6.4.2). The following shows that no such concerns explain the policy outcome.

6.4.1 Administrative Complexity

Both the ARB and industry stakeholders opposing BCAs for industrial facilities claimed concerns about the administrative complexity of these measures. For instance, upon release of the cap-and-trade program’s initial design, the ARB cited “potentially significant technical (...) challenges” of BCAs for industrial facilities.⁷⁵ In addition, the ARB indicated a lack of available data: “[BCAs are] effective if detailed production data are available on both the imported goods themselves and the entities producing them. Because goods are often traded several times before entering the California market, determining the associated [greenhouse gas] emissions could be exceedingly difficult.”⁷⁶ Similarly, referring to a BCA on imports of cement, the ARB noted “technical limitations and insufficient resources.”⁷⁷ Also industry stakeholders that opposed BCAs for industrial facilities emphasized the administrative complexity of these measures.⁷⁸ A report commissioned by the Western States Petroleum

⁷⁵ ARB, “ISoR”, *supra* note 22 at IV-8; see also *ibid* at K-33.

⁷⁶ *Ibid* at IV-8.

⁷⁷ US, California Air Resources Board, *California’s Cap-and-Trade Program, Final Statement of Reasons* (October 2011), online: ARB <<https://www.arb.ca.gov/>> (retrieved 9 March 2018) at 282 [ARB, “FSoR”].

⁷⁸ Interviews of an industry spokesperson (17 October 2017) and an industry spokesperson (19 October 2017).

Association (WSPA), which represents the oil and gas industry, highlighted those concerns as well as the need to develop “new administrative functions to track all trade into and out of the state.”⁷⁹

However, in contrast to these claims, there is evidence that the administrative complexity of BCAs for industrial facilities is, in fact, not prohibitive. Although implementing and administering BCAs for industrial facilities may not be trivial, academic research shows that BCAs are practically feasible for basic industrial products and offers pragmatic and creative solutions to limit the administrative complexity of these measures.⁸⁰ Similarly, a group of economists that advised the ARB concluded: “[I]n some instances it will be difficult to obtain the information needed to introduce [BCAs] effectively. [However], in many cases, [BCAs] are feasible.”⁸¹ Similarly, an academic indicated that implementing BCAs for select basic industrial products would “dramatically simplify the informational requirements.”⁸² In fact, when deliberating the design of a cap-and-trade program, even the ARB acknowledged in 2008: “[While a BCA] for all goods is conceivable but highly complex administratively, [it] may be workable for some goods.”⁸³ Also two staffers from the California state legislature noted that BCAs are practically feasible for “simple industries like cement”⁸⁴ and that concerns about the administrative complexity were “not a fatal flaw.”⁸⁵

⁷⁹ Robert N Stavins, Jonathan Borck & Todd Schatzki. “Options for Addressing Leakage in California’s Climate Policy” (2010) Analysis Group at 26; see also *ibid* at 16-17.

⁸⁰ See section 2.3.2.1, above.

⁸¹ Economic and Allocation Advisory Committee, *supra* note 36 at 64.

⁸² Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

⁸³ US, California Air Resources Board, *Scope of Coverage and Point of Regulation for a Potential Greenhouse Gas Cap-and-Trade Program* (29 February 2008), online: ARB <<https://www.arb.ca.gov/>> (retrieved 7 March 2018) at 9.

⁸⁴ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

⁸⁵ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

Furthermore, the fact that the ARB discussed in detail a series of design options for a BCA on imports of cement suggests that it considered that measure practically feasible.⁸⁶ A representative of the environmental community agreed:

I think when [the ARB] took a hard look at [the BCA on imports of cement], they saw clearly enough a pathway [towards implementation] to put [a concept] out for public comment and discussion. The [ARB's] posture at the workshop was: "This is the plan." It was not like this was just an exploratory concept. It was taken very seriously. They clearly saw a path [towards implementation].⁸⁷

Indicative of the administrative feasibility of such a measure, the ARB highlighted the simplicity of cement, describing it as a "[h]omogeneous product with [a] relatively small number of additional point[s] of regulation [under a BCA]," and proposed ways estimate the emissions intensity of imports.⁸⁸ Throughout the interviews, it became clear that the ARB had sufficient data to determine a default emissions factor for imports of cement. Also the cement industry association CSCME characterized the sector as "particularly amenable to the use of a border adjustment with limited administrative burdens"⁸⁹ and offered "to assist [the ARB] by providing data and analysis necessary to develop a border adjustment measure, ensuring that implementation of a border adjustment measure for cement is also feasible."⁹⁰ An anonymous source described cement as "a textbook case of a fungible commodity" and also noted that a BCA on imports of cement would be practically feasible.⁹¹ Moreover, according to a representative of the environmental community, the ARB did not abandon its pursuit of a BCA on imports of cement because it could not "figure this out" from a technical point of view.⁹²

Indeed, the ARB was understood to be convinced of its ability to overcome concerns about the administrative complexity of BCAs for industrial facilities, and an academic emphasized the ARB's administrative capacity:

⁸⁶ See ARB, "BCA for Cement", *supra* note 15.

⁸⁷ Interview of a representative of the environmental community (16 November 2017).

⁸⁸ ARB, "BCA for Cement", *supra* note 15 at 4, 17.

⁸⁹ Letter from CSCME to ARB, *supra* note 44 at 10.

⁹⁰ ARB, "FSOR", *supra* note 77 at 1271.

⁹¹ Interview of an anonymous source (9 November 2017).

⁹² Interview of a representative of the environmental community (16 November 2017).

ARB and the US [Environmental Protection Agency] and the European Commission are probably the three entities on the planet that are capable of dealing with the informational requirements of designing an effective border tariff adjustment (...). There are only a few agencies, environmental regulators in the world that have the administrative capacity to do this kind of thing. ARB is one of them.⁹³

Furthermore, in response to ARB's claim of "insufficient resources,"⁹⁴ the academic pointed to the revenue a BCA for industrial facilities would be able to generate:

We had some economists that were working with us [on SB 775] who are very credible advisers to ARB and a lot of state legislators. And they said [to ARB]: "Yes, it will be a lot of work, but you will generate so much revenue from the BCA, even if you cover just a few industries, that it will more than pay for itself. You will be able to hire all the staff you want. It will probably pay for the entire climate change program at ARB. It would be a major revenue generator."⁹⁵

Moreover, although the ARB encountered similar administrative difficulties in implementing the BCA on imports of electricity, it was able to overcome these challenges in that case. For instance, the ARB was able to assign emissions to imports by identifying their source through tracing the contractual relationships between buyers and sellers or, where this was not feasible, by assigning a default emissions factor to unspecified imports of unknown origin, for example when imports are traded several times before entering the California market.⁹⁶ In fact, when it considered a BCA on imports of cement, the ARB proposed to "[a]pply default emissions factor(s) similar to imported electricity based on sound engineering estimates."⁹⁷ In 2015, the ARB assigned a default emissions factor to a large number of unspecified imports equivalent to 40% of all imports in that year.⁹⁸ Therefore,

⁹³ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

⁹⁴ See ARB, "FSOR", *supra* note 77 at 282.

⁹⁵ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017). The ARB currently levies a separate fee on sources of emissions, such as manufacturing industries and utilities, to cover the costs of developing, administering, and implementing California's climate policies under AB 32, including its cap-and-trade program; see US, Cal Code Regs tit 17 §§ 95200-95207 (2009).

⁹⁶ See section 5.6.1, above.

⁹⁷ ARB, "BCA for Cement", *supra* note 15 at 17.

⁹⁸ See US, California Energy Commission, "Total System Electric Generation", online: CEC <<http://www.energy.ca.gov/>> (retrieved 9 April 2018). For the remainder of imported electricity in that year, the ARB assigned facility-specific emissions by tracing the contractual relationships between buyers and sellers.

there is no evidence that policy-makers considered the administrative complexity to be too onerous in the case of the BCA on imports of electricity.

Further evidence of the practical feasibility of implementing and administering BCAs for industrial facilities is found in the ARB's implementation of the LCFS.⁹⁹ As part of the LCFS, which has included imports of transportation fuels since 2011, the ARB assigns emissions intensities to transportation fuels consumed in California. In fact, the ARB takes into account the full life cycle greenhouse gas emissions of these fuels, which includes both "direct emissions and significant indirect emissions" as well as "all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer."¹⁰⁰ The ARB has determined over 800 such pathways of transportation fuels to date.¹⁰¹ The ARB's ability to implement and administer the LCFS highlights its significant administrative capacity and suggests that the implementation and administration of BCAs for industrial facilities would be practically feasible as well.

In fact, as with concerns about WTO law and the DCC,¹⁰² there are indications that opponents of BCAs for industrial facilities might have alleged administrative complexity concerns to reinforce their opposition. Such concerns could be used as a smoke screen and to cast doubt on whether BCAs are practically feasible, despite evidence to the contrary. Although the ARB claimed such concerns in government documents, the ARB was understood to be convinced of its ability to overcome these difficulties. In addition, the ARB appears to have considered a BCA on imports of cement practically feasible. In fact, the ARB was able to overcome similar administrative difficulties in the case of the BCA on imports of electricity. Moreover, the ARB's ability to implement and administer the LCFS further evidences its significant administrative capacity and suggests that the implementation and administration of BCAs for industrial facilities would be practically feasible as well. Not

⁹⁹ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

¹⁰⁰ US, Cal Code Regs tit 17 § 95481(a)(49) (2010).

¹⁰¹ See US, California Air Resources Board, "LCFS Pathway Certified Carbon Intensities", online: ARB <<https://www.arb.ca.gov/>> (retrieved 8 March 2019).

¹⁰² See part 6.3, above.

surprisingly, an academic remarked: “I think [the ARB] had other reasons [than concerns about the administrative complexity] for opposing.”¹⁰³

Also industry stakeholders that opposed BCAs for industrial facilities might have alleged and overstated concerns about the administrative complexity of these measures to reinforce their opposition. For instance, although an industry spokesperson acknowledged that the ARB was able to put in place both a BCA on imports of electricity and the LCFS, the interviewee repeatedly overemphasized the administrative complexity of BCAs for industrial facilities, noting: “Also, is it even [practically] feasible? What kind of information are you going to need to actually, accurately attribute some [compliance] cost? It seems a bridge too far, frankly.”¹⁰⁴ The interviewee also claimed that the ARB did not further pursue a BCA on imports of cement due to practical difficulties, which is not supported by other evidence:

ARB tried three or four times to create some kind of border adjustment for imported cement. And every time they retreated from the effort because it was just too complicated or unworkable, for whatever reason. You would think that cement is one of the easier products [for a BCA] and even [in this case] they could not find a way to make it work. (...) Each time they looked at it, they came up with more hurdles or complications.¹⁰⁵

Overemphasizing these concerns, the industry spokesperson called BCAs for industrial facilities “impossible,” “fantasy,” “completely unworkable,” and “a nightmare.”¹⁰⁶ These concerns seemed to disappear, however, when the interviewee contended that using BCAs on imports from other US states might be “easy enough to track” if needed to equalize carbon prices between California’s cap-and-trade program and any possible future carbon-pricing policies in other US states.¹⁰⁷ Similarly, attempting to portray the perfect as the enemy of the good, another industry spokesperson first concentrated on the administrative complexity of

¹⁰³ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017). The other reasons the interviewee referred to are found in a preference for free allocation, which is discussed in part 6.6, below.

¹⁰⁴ Interview of an industry spokesperson (17 October 2017).

¹⁰⁵ *Ibid.*

¹⁰⁶ *Ibid.*

¹⁰⁷ *Ibid.*

BCAs for industrial facilities before arguing that, in any event, such measures would not be able to accurately attribute emissions to imports.¹⁰⁸

To summarize, both the ARB and industry stakeholders opposing BCAs for industrial facilities claimed concerns about the administrative complexity of these measures. However, although the degree of complexity involved in implementing BCAs for basic industrial products is not entirely clear, there is evidence that their administrative complexity is not prohibitive. In fact, there are indications that opponents of BCAs for industrial facilities might have alleged administrative complexity concerns to reinforce their opposition, but the evidence points to the contrary. As a result, practical concerns about the administrative complexity of implementing and administering BCAs for industrial facilities cannot explain the policy outcome.

6.4.2 Effectiveness of BCAs in Countering Carbon Leakage

This section examines whether policy-makers had any concerns regarding the effectiveness of BCAs in countering carbon leakage that led to the absence of these measures for industrial facilities in California's cap-and-trade program.

One interviewee drew a parallel between BCAs for industrial facilities and the concerns about circumvention through resource shuffling that emerged after the adoption of the BCA on imports electricity.¹⁰⁹ Specifically, this anonymous source raised the concern that out-of-state products could be redirected so that low-carbon products in an industry sector are exported to California while the output from high-carbon facilities is used elsewhere.¹¹⁰ Using the example of a BCA on imports of cement, the interviewee opined that "resource shuffling would be a big issue with China."¹¹¹

However, there is no evidence that policy-makers shared this or any other concerns about the effectiveness of BCAs for industrial facilities in countering carbon leakage. Indeed,

¹⁰⁸ Interview of an industry spokesperson (19 October 2017).

¹⁰⁹ See section 5.6.2, above.

¹¹⁰ Interview of an anonymous source (9 November 2017).

¹¹¹ *Ibid.*

none of the interviewees in this case study was aware of any such concerns among policy-makers, and no documentary evidence of such concerns was found. This could be explained by policy-makers' confidence in their ability to address practical difficulties. Alternatively, the discussions on BCAs for industrial facilities may not have advanced far enough to raise such concerns.

In conclusion, there is no evidence that policy-makers were concerned about the effectiveness of BCAs for industrial facilities in countering carbon leakage. As a result, such concerns cannot explain the policy outcome.

6.5 Concerns about Repercussions for International or US State-Level Relations

This part examines whether policy-makers had any concerns about repercussions for international or US state-level relations that led to the absence of BCAs for industrial facilities in California's cap-and-trade program. The discussion first concentrates on a potential fear of trade war and retaliation (section 6.5.1) before turning to a potential fear of hampering international or US state-level climate efforts (section 6.5.2). The following shows that there were no such concerns that could explain the policy outcome.

6.5.1 Fear of Trade War and Retaliation

There is no evidence that any governments of other countries or US states exercised opposition to BCAs for industrial facilities or that any such governments lobbied the federal US government in opposition. Indeed, none of the interviewees in this case study was aware of any such efforts, and no documentary evidence of any such opposition was found.

Several factors may explain why no government of other countries or US states exercised any opposition to BCAs for industrial facilities. For one, the discussions on BCAs for industrial facilities in the cap-and-trade program may not have advanced far enough to elicit such opposition. An industry spokesperson noted that "the discussion about border adjustment did not go far enough to spur that kind of reaction. It really never got enough

traction.”¹¹² Indeed, opposition might emerge in response to written draft regulation. Referring to SB 775, which foresaw BCAs for industrial facilities, an academic surmised: “I suspect that if we had gone further with this, if we had been able to gain some political traction, we would have seen those issues emerge perhaps later. I don’t know.”¹¹³

At the same time, given overwhelming in-state opposition to BCAs for industrial facilities in combination with limited demand for these measures,¹¹⁴ out-of-state stakeholders likely did not feel the need to exert any opposition. Therefore, unless in-state stakeholder views change significantly in the future, out-of-state opponents are unlikely to seek influence on this issue in California.

Even in the case of the BCA that California has adopted for imports of electricity, there is no evidence that the governments of other countries or US states exercised opposition.¹¹⁵ There is also no evidence of any threats from other countries or US states to retaliate against California’s LCFS, which has included imports of transportation fuels since 2011. In particular, although Canada displayed aggressive rhetoric against the LCFS, these efforts did not go beyond mere suggestions that it might pursue legal action through the WTO.¹¹⁶ The relatively small size of Canada’s economy compared to California’s or that of the US as a whole is likely to have deterred the country from retaliating in response to the LCFS, particularly given the traditionally close political and economic relationship with its southern neighbour.¹¹⁷

¹¹² Interview of an industry spokesperson (17 October 2017); also interview of an industry spokesperson (19 October 2017).

¹¹³ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹¹⁴ See part 6.7, below, for details on stakeholder attitudes towards BCAs for industrial facilities.

¹¹⁵ See section 5.4.1, above.

¹¹⁶ See section 6.3.1, above.

¹¹⁷ In 2017, Canada’s GDP was \$1.7tn, compared to California’s GDP of \$2.7tn and that of the US amounting to \$19.4tn. These figures are in current US dollars; World Bank, “GDP (Current US\$)”, online: World Bank Open Data <<https://data.worldbank.org/>> (retrieved 23 August 2018); US, Bureau of Economic Analysis, “Gross Domestic Product (GDP) by State”, online: BEA <<https://www.bea.gov/>> (retrieved 30 May 2018).

There are further reasons that explain the absence of opposition from the governments of other countries or US states.¹¹⁸ This is likely due to California's highly import-oriented economy, which makes it relatively immune to retaliation from other countries. In addition, the political influence and economic power of the US as a whole are likely to deter other countries from entering into a dispute with one of the country's states. Similarly, California's economic significance within the US is likely to deter opposition from other US states. What is more, policy-makers in California showed no fear of opposition from other countries or US states. In fact, the California government has a history of asserting itself as a major, dominant player on climate policy both within the US and internationally. Indeed, due to the state's assertive climate leadership, California is unlikely to shy away from a dispute with other governments, who are likely aware of this.

In summary, there is no evidence that any governments of other countries or US states exercised opposition to BCAs for industrial facilities. This is because out-of-state interests are unlikely to have felt a need to exert their opposition given existing overwhelming in-state opposition in combination with limited demand for these measures. The absence of such opposition is also likely due to California's significant and highly import-oriented economy, the political influence and economic power of the US as a whole, and California's assertive climate leadership. As a result, fear of trade war and retaliation cannot explain the policy outcome.

6.5.2 Fear of Hampering International or US State-Level Climate Efforts

This section examines whether a fear of hampering international or US state-level climate efforts led to the absence of BCAs for industrial facilities in California's cap-and-trade program.

In fact, there is no evidence that discussions of BCAs for industrial facilities in California negatively affected international climate efforts or any climate efforts by other US states. There is also no evidence that policy-makers in California had any concerns of BCAs

¹¹⁸ These reasons are explored in detail in section 5.4.1.2, above. While they are discussed in the context of California's BCA on imports of electricity, they are equally valid regarding BCAs for industrial facilities.

for industrial facilities having such an effect. Indeed, none of the interviewees in this case study was aware of or concerned about any such effects, and no relevant documentary evidence was found.

One possible explanation is that the discussions on BCAs for industrial facilities may not have advanced far enough to hamper international or US state-level climate efforts. At the same time, there are further explanations for these observations.¹¹⁹ Although its leaders like to engage in “climate diplomacy” and assert California as a quasi-nation state in this area of policy-making,¹²⁰ California is not a nation state but a subnational jurisdiction. Accordingly, California has no formal role in the international climate negotiations under the United Nations Framework Convention on Climate Change. This, in turn, means that potential impacts of California’s policy-making on those negotiations are likely much less of a concern, if any, for policy-makers in California. What is more, California’s climate policy-making efforts are a reflection of the state’s aspiration for global leadership on climate action. Consequently, policy-makers in California are not likely to see their actions as endangering others’ climate efforts, neither with respect to international efforts nor those of other US states.

In conclusion, there is no evidence that discussions of BCAs for industrial facilities in California negatively affected international climate efforts or any climate efforts by other US states. In addition, there is no evidence that policy-makers in California had any concerns about BCAs for industrial facilities having such an effect. As a result, no fear of hampering international or US state-level climate efforts existed that could explain the policy outcome.

6.6 Alternative Measures

This part examines whether a preference for alternative measures led to the absence of BCAs for industrial facilities in California’s cap-and-trade program. The discussion first considers free allocation as an alternative to BCAs for industrial facilities and the relation

¹¹⁹ The following remarks are reproduced from section 5.4.2, above.

¹²⁰ See section 5.4.1.2, above.

between the former and the latter (section 6.6.1). The analysis then explores stakeholders' and policy-makers' attitudes towards these alternatives (section 6.6.2) and explains preferences for free allocation (section 6.6.3) before concluding with a summary (section 6.6.4). As will be shown, a preference for free allocation among industry stakeholders and, in turn, policy-makers explains the policy outcome.

6.6.1 Free Allocation and Relation to BCAs

The political discourse on BCAs for industrial facilities in California's cap-and-trade program took place in the context of countering carbon leakage. For instance, the ARB's consideration of a BCA on imports of cement was "to avoid leakage."¹²¹ Likewise, when the cap-and-trade program was extended through 2030, AB 398's provision requiring the ARB to evaluate BCAs was "to reduce leakage."¹²² Equally, to the extent that they addressed the topic of BCAs for industrial facilities, stakeholders from industry and NGOs also framed the conversation in terms of countering carbon leakage.¹²³ In fact, neither policy-makers nor stakeholders appear to have considered the potential benefit of BCAs to incentivize other jurisdictions to take climate action.¹²⁴ An industry spokesperson, for example, indicated being unaware that this potential benefit was raised in any conversations on BCAs for industrial facilities in California.¹²⁵

The free allocation of emission allowances offers an alternative measure to counter carbon leakage. However, there was no consensus between policy-makers and stakeholders on whether BCAs for industrial facilities and free allocation are mutually exclusive or may be applied in combination.

¹²¹ ARB, *Resolution 10-42*, *supra* note 14 at 11.

¹²² US, Cal Health and Safety Code § 38562(c)(2)(I) (2017).

¹²³ See e.g. Letter from CSCME to EAAC in 2009, *supra* note 45 at 4; Union of Concerned Scientists et al, Letter to California Air Resources Board Chairman Mary Nichols (30 August 2012). [Letter from NGOs to ARB].

¹²⁴ For details on this potential benefit, see section 2.2.4, above.

¹²⁵ Interview of an industry spokesperson (17 October 2017).

The cement industry sought a BCA on imports in addition to free allocation. Calling free allocation “insufficient alone to minimize leakage in highly vulnerable industries,”¹²⁶ the CSCME argued that BCAs and free allocation “should not be considered mutually exclusive.”¹²⁷ Instead of regarding these measures as alternative approaches, the CSCME held that a BCA is a “complementary measure” to free allocation.¹²⁸ Consequently, seeking to “combine allowance allocations and a border adjustment,” the CSCME supported an “incremental” BCA on imports of cement “to reduce leakage beyond levels achieved by the [cap-and-trade program].”¹²⁹ In a letter to ARB, the CSCME wrote: “CSCME believes that the best approach for minimizing leakage associated with cement consumed in California is a combination of (...) free allowances (...) and a partial border adjustment on imports (...).”¹³⁰

The ARB was open to implementing BCAs for industrial facilities in addition to free allocation. Upon release of the cap-and-trade program’s initial design, the ARB indicated: “Should ARB find that leakage is occurring despite the safeguards in the regulation, ARB will examine what additional safeguards, possibly including border adjustments, should be implemented.”¹³¹ The ARB subsequently reiterated this view specifically with respect to the cement industry.¹³² Further, when commenting on the possibility of a BCA for the cement industry, the ARB referred to such a measure as “a border adjustment in addition to free allocation.”¹³³ In addition, when directing its staff to investigate a BCA on imports of cement, the ARB noted that this was “to address residual leakage concerns that may remain after the [free] allocation to cement producers.”¹³⁴

¹²⁶ Letter from CSCME to ARB, *supra* note 44 at 9.

¹²⁷ Letter from CSCME to EAAC in 2009, *supra* note 45 at 4.

¹²⁸ Coalition for Sustainable Cement Manufacturing & Environment, Letter from Chairman John T. Bloom, Jr. to Economic and Allocation Advisory Committee Chair Larry Goulder (9 January 2010) at 1-2.

¹²⁹ ARB, “FSoR”, *supra* note 77 at 282, 286. At times, the CSCME also used the term “partial” instead of “incremental” when referring to the combination of free allocation and a BCA on imports of cement; see Letter from CSCME to ARB, *supra* note 44 at 2.

¹³⁰ *Ibid* at 10.

¹³¹ ARB, “ISoR”, *supra* note 22 at IV-9.

¹³² See ARB, “FSoR”, *supra* note 77 at 281.

¹³³ *Ibid* at 1271-1272.

¹³⁴ ARB, *Resolution 10-42*, *supra* note 14 at 9 of Attachment B.

NGOs, by contrast, considered BCAs for industrial facilities and free allocation to be mutually exclusive approaches. In a letter to the ARB, a group of NGOs referred to BCAs for industrial facilities as an alternative to free allocation.¹³⁵ Furthermore, regarding ARB's consideration of a BCA on imports of cement, the NGO NRDC asked the ARB "to make sure [not to] use both border adjustments and [free] allowances to combat leakage in that sector," adding: "You can't really have it both ways."¹³⁶

6.6.2 Attitudes towards Alternatives

Both WSPA, the California Chamber of Commerce (CalChamber), and the California Manufacturers & Technology Association (CMTA), which are powerful industry associations that all opposed BCAs for industrial facilities, preferred free allocation to these measures. In the negotiations on the extension of the cap-and-trade program through 2030, for instance, the oil and gas industry "strongly preferred keeping the system the way it was, [namely] keeping [a relatively high level of] free allowance allocation, which is what they have today, and which they were able to keep moving forward."¹³⁷ According to an interviewee, "they said 'No, no. We just want our free allowances,' and they just played hardball."¹³⁸ In fact, although free allocation for industrial facilities was meant to be transitional and set to decline over time,¹³⁹ AB 398 maintained the relatively high levels of free allocation through 2030 for all industrial facilities and regardless of leakage risk.¹⁴⁰ This relative increase in free allocation was "one of the major concessions" to industry

¹³⁵ Letter from NGOs to ARB, *supra* note 123 at 4.

¹³⁶ ARB, "FSor", *supra* note 77 at 282.

¹³⁷ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹³⁸ *Ibid.*

¹³⁹ See US, Cal Code Regs tit 17 § 95870(e)(2) (2011); ARB, "ISor", *supra* note 22 at II-26-27.

¹⁴⁰ See US, Cal Health and Safety Code § 38562(c)(2)(G) (2017), which instructed the ARB to "[s]et industry assistance factors for allowance allocation commencing in 2021 at the levels applicable in the compliance period of 2015 to 2017, inclusive." See also Kahn, "Cap-and-Trade Signing", *supra* note 6; Debra Kahn, "In a Blast From the Past, State Approves Clean Power Plan", *E&E News* (28 July 2017), online: E&E News <<https://www.eenews.net/>>.

stakeholders in the negotiations on the extension of the cap-and-trade program through 2030, which led WSPA, CalChamber, and CMTA to support AB 398.¹⁴¹ An interviewee explained:

AB 398 increases the free allocation level. It does not decline nearly as quickly as [the ARB] had proposed as being sufficient to protect against leakage risks. So this was one of the major concessions within the bill to the oil and gas industry. That is also something that led the California Chamber of Commerce and the manufacturers to support this bill. Basically every major industry group in the state weighed in in support of this.¹⁴²

Others confirmed that free allocation was the “main bargaining point”¹⁴³ and industry stakeholders’ “consensus top-priority ask”¹⁴⁴ in these negotiations. As a staffer from the California State Assembly explained, the focus on free allocation united industry stakeholders in their advocacy vis-à-vis policy-makers: “Regardless of whatever differences they had otherwise, the common priority of every industry was to maintain as many free allowances as possible. And that shows up in how AB 398 turned out.”¹⁴⁵

In fact, no industry stakeholder preferred BCAs for industrial facilities to free allocation. Even the cement industry, despite its initial support for a BCA on imports of cement, eventually stopped advocating for that BCA in the negotiations on the extension of the cap-and-trade program through 2030, possibly so as not to forego free allocation in exchange for a BCA and to “keep a united front”¹⁴⁶ with other industry groups that opposed BCAs and favoured free allocation.¹⁴⁷ According to an interviewee, if confronted with a choice between either a BCA or free allocation, the cement industry would have chosen the latter.¹⁴⁸ In fact, the cement industry “would never want to have 100% border carbon adjustments [without

¹⁴¹ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017); see also Debra Kahn, “Brown on Climate Bill: ‘I’m Going to Be Dead; It’s for You’”, *E&E News* (14 July 2017), online: E&E News <<https://www.eenews.net/>>.

¹⁴² Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

¹⁴³ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

¹⁴⁴ Interview of a representative of the environmental community (16 November 2017).

¹⁴⁵ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

¹⁴⁶ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹⁴⁷ For details on the cement industry’s advocacy during the negotiations on the extension of the cap-and-trade program through 2030, see section 6.7.1, below.

¹⁴⁸ Interview of an anonymous source (9 November 2017).

free allocation].”¹⁴⁹ The interviewee also spoke about “SB 775, which proposed border carbon adjustments across all industrial sectors in California in lieu of free allowances,” adding: “That never really got anywhere.”¹⁵⁰ This shows that even industry stakeholders supporting BCAs for industrial facilities did not want to give up free allocation in exchange for these measures.

In consequence, also the ARB preferred free allocation to BCAs for industrial facilities.¹⁵¹ Although a group of economists that advised the ARB recommended free allocation for industrial facilities “only in circumstances where the alternative of some form of border adjustment is not practical,”¹⁵² the ARB chose free allocation for all industrial facilities instead. In reference to this recommendation, a staffer from the California State Assembly noted that the ARB “ignored or discounted the advice they were getting from some of the economists and others on how to deal with leakage.”¹⁵³ An anonymous source indicated that the ARB, after having considered a BCA on imports of cement, “wanted to find a way [to offer a] comparable level of leakage protection through the free allowance system” instead.¹⁵⁴ Similarly suggesting a preference at the ARB for free allocation, another interviewee noted that the ARB had its “own preferred way of getting to where they need to get to.”¹⁵⁵

Therefore, industry stakeholders and, in turn, policy-makers preferred free allocation to BCAs for industrial facilities. One interviewee summarized by stating: “In the end, everybody preferred to stick with the current system.”¹⁵⁶

¹⁴⁹ *Ibid.*

¹⁵⁰ *Ibid.*

¹⁵¹ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

¹⁵² Economic and Allocation Advisory Committee, *supra* note 36 at 63.

¹⁵³ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

¹⁵⁴ Interview of an anonymous source (9 November 2017).

¹⁵⁵ Interview of an industry spokesperson (19 October 2017).

¹⁵⁶ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

6.6.3 Explanation of Preferences for Free Allocation

There are several reasons why industry stakeholders preferred free allocation to BCAs for industrial facilities, namely because of the different economic effects of these alternative measures on downstream product prices (section 6.6.3.1) and, perhaps most importantly, the overgenerous levels and ensuing inertia of free allocation (section 6.6.3.2).

6.6.3.1 Economic Effects on Downstream Product Prices

Industry stakeholders likely preferred free allocation due to the economic effects of BCAs on downstream industries and consumers. Compared to a BCA, free allocation results in lower product prices for downstream consumers. Indeed, free allocation is “widely believed to result in lower product prices than alternative forms of allocation,” including BCAs.¹⁵⁷ An academic explained as follows:

The big difference between a [BCA] and [free allocation] is the effect on downstream prices. Both approaches protect the domestic industry from a disproportionate cost of the regulation relative to industries outside of the jurisdiction. They do it in different ways though. In both cases you are levelling the playing field, but you are levelling it at a different height in terms of cost. So the big difference is how [the carbon price] is transmitted downstream.¹⁵⁸

Also the ARB recognized the difference in downstream product prices between free allocation and a BCA. When releasing the cap-and-trade program’s initial design, the ARB explained that, while both BCAs and free allocation have a similar effect of “level[ing] the playing field between regulated and unregulated facilities,” free allocation “weakens the [carbon] price signal on goods.”¹⁵⁹ Likewise, an academic pointed out that free allocation “dilutes the carbon price [signal, particularly] for downstream consumers,”¹⁶⁰ and another

¹⁵⁷ James Bushnell & Jacob Humber, “Rethinking Trade Exposure: The Incidence of Environmental Charges in the Nitrogenous Fertilizer Industry” (2017) 4:3 *Journal of the Association of Environmental and Resource Economists* 857 at 860.

¹⁵⁸ Interview of an academic (2 November 2017).

¹⁵⁹ ARB, “ISoR”, *supra* note 22 at K-33.

¹⁶⁰ Interview of an academic (2 November 2017).

academic highlighted that “consumers do not see the carbon price in their retail prices” due to free allocation.¹⁶¹

Recent academic research confirms the difference in downstream product prices between free allocation and a BCA. For instance, using an economic model to simulate the effects of different climate policies on the US cement industry, Fowlie, Reguant, and Ryan show that a BCA on imports of cement results in a higher cement price than when using free allocation.¹⁶² This is because under a BCA, “both foreign and domestic firms bear the complete cost of compliance, [while] no compensation in the form of contingent rebates or lump-sum transfers is offered.”¹⁶³ Free allocation, by contrast, reduces the net cost to domestic producers, thus allowing them to offer their product at a price that is closer to the level of imported cement, which does not face a carbon price.¹⁶⁴ Similarly, Bushnell and Humber study the production of ammonia in the US fertilizer industry and show that, while both free allocation and a BCA on imports of ammonia “insulate domestic producers from the competitive effects of carbon pricing,” applying a BCA results in price increases and reduces downstream consumption compared to free allocation.¹⁶⁵

Downstream consumers are likely to prefer free allocation to a BCA to benefit from lower product prices.¹⁶⁶ Whether producers also prefer free allocation for this reason depends on the elasticity of the demand for their products in response to a change in product prices. An academic explained: “If you have demand that is elastic, you will have larger quantities of sales at the lower price [resulting from free allocation] than at the higher price [when using a BCA]. Even a domestic industry might prefer [free] allocation just to the extent that sales are somewhat higher. It depends on the industry.”¹⁶⁷ Conversely, the more inelastic the demand for their products, the more likely producers are indifferent to an increase in product

¹⁶¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹⁶² Meredith Fowlie, Mar Reguant & Stephen P Ryan, “Market-Based Emissions Regulation and Industry Dynamics” (2016) 124:1 *Journal of Political Economy* 249 at 286.

¹⁶³ *Ibid.*

¹⁶⁴ See *ibid.*

¹⁶⁵ Bushnell & Humber, *supra* note 157 at 882-883.

¹⁶⁶ Interview of an academic (2 November 2017).

¹⁶⁷ *Ibid.*

prices from a BCA because their sales are unlikely to decrease as a result. Therefore, where demand for a product is relatively elastic, producers of that product are more likely to prefer free allocation to achieve higher sales than with a BCA. The academic offered an example: “[Demand for] gasoline is probably so inelastic that it does not really make a difference, [but] if you are talking about something that is highly elastic, then maybe it would make a difference.”¹⁶⁸

Given that the demand for gasoline is relatively inelastic, this downstream price effect is unlikely to explain WSPA’s preference for free allocation. Further, given that the demand for cement, ubiquitous in use and an essential building block for the built environment, is relatively inelastic, also the cement industry was likely indifferent to this downstream price effect. Other industries, by contrast, may have experienced a more elastic demand for their products and preferred free allocation due to this downstream price effect. An industry spokesperson offered an indication of this concern, noting that with a BCA “you are artificially increasing the cost of everything in California.”¹⁶⁹

Paradoxically, free allocation’s effect of limiting downstream product price increases may also appeal to policy-makers for political reasons.¹⁷⁰ While a clear carbon price signal maximizes the environmental effectiveness of carbon pricing, policy-makers in California sought to avoid making the costs of California’s climate policies visible to voters. Indeed, California implemented a package of climate policies under the umbrella of AB 32 that includes not only the cap-and-trade program but also a series of other measures, such as a renewable portfolio standard, the LCFS, energy efficiency measures, and others.¹⁷¹ In fact, designed to yield over 80% of emissions reductions until 2020, these so-called complementary measures are responsible for the vast majority of emissions reductions under AB 32.¹⁷² According to a 2017 study, “the climate policy package was purposely designed to

¹⁶⁸ *Ibid.*

¹⁶⁹ Interview of an industry spokesperson (19 October 2017).

¹⁷⁰ See Bushnell & Humber, *supra* note 157 at 860; also interview of an academic (2 November 2017).

¹⁷¹ See ARB, “Scoping Plan”, *supra* note 4.

¹⁷² See *ibid* at 17; also Guri Bang, David G Victor & Steinar Andresen. “California’s Cap-and-Trade System: Diffusion and Lessons” (2017) 17:3 Global Environmental Politics 12 at 22. A staffer from the California State

rely heavily on direct regulation so as to avoid high permit prices in the cap-and-trade program, which would have caused political controversy that could have jeopardized continuance of the whole package of climate policy measures.”¹⁷³

Also a staffer from the California State Senate indicated that a strong carbon price signal under the cap-and-trade program may not “sustain itself politically,” cautioning that “the program could very well be extinguished” as a result.¹⁷⁴ In order to avoid relatively high allowance prices that would “[make] the real costs of abatement transparent,” the 2017 study explains, “the climate policy package is carefully constructed to hide the marginal costs of climate action. With a relatively low and stable carbon price in the cap-and-trade system attracting the most attention, the much higher costs incurred by the less talked about [renewable portfolio standard] and LCFS are not so visible to the public.”¹⁷⁵ An academic noted that these much higher, but less visible, “implicit shadow [carbon] prices” of the complementary policies could amount to “hundreds of dollars” per t CO₂-eq.¹⁷⁶ Another academic confirmed policy-makers’ intention to conceal the cap-and-trade program’s carbon price by using free allocation to benefit from its dampening effect on downstream prices: “Part of the reason we have free allowances in California is to insulate consumers from the carbon price. (...) What free allowances allow is for domestic manufacturers to price competitively with imports. And that means that consumers do not see the carbon price in retail prices.”¹⁷⁷

Therefore, the ability of free allocation to limit increases in downstream product prices appealed not only to industry stakeholders that experienced relatively elastic demand for their products but also to policy-makers for political reasons.

Senate referred to this as the “unwritten story about California climate policy”; interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

¹⁷³ Bang, Victor & Andresen, *supra* note 172 at 27.

¹⁷⁴ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

¹⁷⁵ Bang, Victor & Andresen, *supra* note 172 at 22, 25.

¹⁷⁶ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

¹⁷⁷ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

6.6.3.2 Generosity and Ensuing Inertia of Free Allocation

Perhaps the most important reason why industry stakeholders preferred free allocation to BCAs for industrial facilities is found in the generosity and ensuing inertia of free allocation. The levels of compensation policy-makers offered industry stakeholders through free allocation appear to be overgenerous. Once free allocation was introduced, both the recipients and policy-makers had incentives to maintain the status quo. Indeed, the economic, political, and institutional inertia of free allocation created a path dependency that led to its perpetuation.

The significant financial value of the free allocation distributed to industrial facilities, particularly to the oil and gas industry and the cement industry, demonstrates the overgenerous levels of free allocation. For instance, in 2015, free allocation for industrial facilities amounted to some 56m allowances.¹⁷⁸ Importantly, 72% (40m) of these free allowances were allocated to the oil and gas industry,¹⁷⁹ 16% (9m) to the cement industry, and the remaining share of 12% (7m) to all other industries combined.¹⁸⁰ In 2015 alone, these free allowances distributed to the oil and gas industry had a value of \$498m, the share for the cement industry was valued at \$113m, with the remainder distributed to all other industries worth \$83m.¹⁸¹ In fact, 88% (49m) of free allocation for industrial facilities in that year, equivalent to \$611m, were distributed to the oil and gas industry and the cement industry. Therefore, these industries were the principal beneficiaries of free allocation for industrial facilities. Two interviewees also highlighted that the vast majority of free allocation for industrial facilities is distributed to the oil and gas industry, with one of them noting that

¹⁷⁸ US, California Air Resources Board, “Public Data on Allowance Allocation”, online: ARB <<https://www.arb.ca.gov/>> (retrieved 8 March 2019) [ARB, “Allocation Data”].

¹⁷⁹ More specifically, 51% (28m) were allocated for refining and 21% (12m) for oil and gas extraction.

¹⁸⁰ ARB, “Allocation Data”, *supra* note 178. These other industries include mining, manufacturing of food, glass, paper, chemicals, and metal.

¹⁸¹ The market value of these allowances is based on the average of the current auction settlement price of \$12.44 in 2015; see US, California Air Resources Board, *California Cap-and-Trade Program: Summary of Joint Auction Settlement Prices and Results* (May 2017), online: ARB <<https://www.arb.ca.gov/>> (retrieved 8 June 2017).

“somewhere between two thirds and three quarters [of free allocation for industrial facilities] in any given year go to the oil and gas industry in California.”¹⁸²

Not surprisingly given the enormous financial value of these free allowances, industry stakeholders, particularly the oil and gas industry and the cement industry, did not want to risk losing the free allocation of allowances. Speaking about the negotiations on the extension of the cap-and-trade program through 2030, an academic indicated that some industry stakeholders were “really freaked out about losing their free allowances” under SB 775, which foresaw BCAs for industrial facilities in lieu of free allocation.¹⁸³ Indeed, as another academic pointed out, “if you have a [BCA] for a certain sector that is well-developed and well-functioning, arguably you do not need free allocation in that sector.”¹⁸⁴ As evidenced by industry stakeholders’ opposition to the development of BCAs for industrial facilities even in other sectors,¹⁸⁵ they were aware of the risk that free allocation would likely be reduced if not terminated altogether under a BCA.¹⁸⁶ When reminded about AB 398’s provision requiring the ARB to evaluate BCAs for industrial facilities in the future, an industry spokesperson’s response illustrates this concern about losing the free allocation of allowances: “I had forgotten that it lived. [But i]t is an evaluation and not a mandate to [implement BCAs].”¹⁸⁷ A staffer from the California State Senate acknowledged that “policy-makers knew that [industry stakeholders] like free allocation because there are over-allocations – they receive too many free allowances,” adding that industry stakeholders focused their advocacy on what they thought “gave them the best deal,” namely free allocation.¹⁸⁸ An academic echoed the perception of this “overgenerous nature” of free allocation to industrial facilities and noted: “It’s politics, totally political.”¹⁸⁹

¹⁸² Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017); also interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹⁸³ *Ibid.*

¹⁸⁴ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

¹⁸⁵ See section 6.7.1, below.

¹⁸⁶ See section 6.6.1, above.

¹⁸⁷ Interview of an industry spokesperson (17 October 2017).

¹⁸⁸ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

¹⁸⁹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

An academic emphasized that the principal beneficiaries of free allocation for industrial facilities had “a strong incentive to keep the system [of free allocation] going.”¹⁹⁰ Referring to the enormous financial value transferred to the oil and gas industry through free allocation, another academic highlighted that this sector had “a lot to lose.”¹⁹¹ Similarly, other interviewees noted that industry stakeholders were “content with”¹⁹² and therefore sought to maintain their free allocation.¹⁹³ In fact, since industry stakeholders were able to secure “such a favourable deal” on free allocation in AB 398, a staffer from the California State Assembly pointed out that “they will try really hard to protect that.”¹⁹⁴ An academic agreed, stating that the concessions on free allocation in AB 398 “make it difficult to reduce the level of free allocation in the future.”¹⁹⁵ Because of this “inertia”¹⁹⁶ of free allocation, industry stakeholders, particularly the oil and gas industry and the cement industry, had a strong incentive to maintain the status quo.

In addition to a concern about losing the generous levels of free allocation, the ensuing inertia of free allocation manifested itself in industry stakeholders’ preference for a known, existing system to address carbon leakage. In other words, industry stakeholders resisted a change to an unknown approach. An academic explained:

A familiar [concern] to hear from stakeholders that have a lot to lose if things change [is]: This is a system that they understand and know, and the other system they don’t know. They don’t know how it’s going to work out [for them]. (...) Whenever you [introduce policy change] – a new thing – you don’t exactly know how that new thing is going to turn out. They felt more comfortable with the current system, with the certainty of the current system.¹⁹⁷

¹⁹⁰ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

¹⁹¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

¹⁹² Interview of a representative of the environmental community (16 November 2017).

¹⁹³ Interviews of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017) and an industry representative (30 October 2017).

¹⁹⁴ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017). See section 6.6.2, above, on the increased level of free allocation conceded to industry stakeholders in AB 398.

¹⁹⁵ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

¹⁹⁶ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

¹⁹⁷ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

An industry spokesperson confirmed this concern, noting: “We don’t know exactly how border carbon adjustment would work.”¹⁹⁸ Similarly, two interviewees indicated that for industry stakeholders, free allocation was “the devil you know.”¹⁹⁹ A staffer from the California State Senate elaborated: “If given the choice between figuring out a new and heretofore untested and [perhaps more] complicated system or living with the status quo of the last four to five years, [industry stakeholders preferred to say] ‘Well, we’ll just stick with what we have now.’”²⁰⁰ Emphasizing the value of a known free allocation system to industry stakeholders, a representative of the environmental community noted: “[They] have a bird in the hand in the form of millions of free allocations that [they] are pretty happy with.”²⁰¹ Likewise, a staffer from the California State Assembly emphasized industry stakeholders’ knowledge about and the certainty of the current system, adding that they “[did] not see a reason to change.”²⁰² Referring to the concessions on free allocation in AB 398, the interviewee asked rhetorically: “If [industry stakeholders] are happy with the deal that they have, why would they risk any kind of disruption?”²⁰³

Also policy-makers had incentives to maintain the status quo. Two interviewees highlighted the “institutional inertia”²⁰⁴ of free allocation, which manifested itself in resistance among policy-makers in changing the approach to address carbon leakage. An academic described the ARB as “very invested in the current system” of free allocation.²⁰⁵ Similarly, a staffer from the California State Assembly depicted the ARB as having become “attached to,” “enamoured of,” and “wedded to” its policy design of free allocation over the

¹⁹⁸ Interview of an industry spokesperson (19 October 2017).

¹⁹⁹ Interviews of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017) and Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

²⁰⁰ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

²⁰¹ Interview of a representative of the environmental community (16 November 2017).

²⁰² Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

²⁰³ *Ibid.*

²⁰⁴ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017); also interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

²⁰⁵ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

years.²⁰⁶ The academic recounted the ARB’s reaction to SB 775, which foresaw BCAs for industrial facilities in lieu of free allocation: “They viewed it as a threat. Because it [meant] change and they [were] invested in the current system, and they have done a lot of complicated, difficult bargaining around the details of the current system.”²⁰⁷

In fact, the bargaining around free allocation goes back to the initial design of the cap-and-trade program. Policy-makers’ decision to use free allocation in the first place was informed by the political advantages of free allocation, which enabled policy-makers to control the distributional impacts under the cap-and-trade program.²⁰⁸ BCAs for industrial facilities, by contrast, did not offer policy-makers the same political advantages. An academic confirmed that “there was a lot of interest from industry [stakeholders] to pursue free allocation of allowances when the program was set up.”²⁰⁹ Speaking with sarcasm about “the wonderful politics of cap-and-trade,” another academic put it bluntly: “The idea was to buy people off with [free] allowances.”²¹⁰ Indeed, as evidenced by the enormous financial value of the free allowances distributed to industrial facilities, free allocation offered policy-makers a way to create a vested interest in cap-and-trade among compliance entities. However, this not only created a vested interest in cap-and-trade but also in free allocation itself. An academic noted: “[Free allocation] is like any subsidy. Once given, [it is] very hard to take away [again].”²¹¹ In fact, as the concessions on free allocation in AB 398 show, policy-makers used free allocation to overcome industry stakeholders’ opposition also in the negotiations on the extension of the cap-and-trade program through 2030.²¹² Based on this experience, an academic offered the following assessment:

I think the experience has taught [the beneficiaries of free allocation] that – they learned this lesson, this time – if things are [getting difficult for them] or if anything is needed from them, they can just demand free allowances in payment.

²⁰⁶ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

²⁰⁷ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁰⁸ See section 2.3.4, above.

²⁰⁹ Interview of Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017).

²¹⁰ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²¹¹ *Ibid.*

²¹² See section 6.6.2, above.

The industry allocation was supposed to fall starting [in 2018]. But as part of the [AB 398] deal, industry got to keep [relatively high levels of free allocation]. In 2025, there will be some consideration of whether we dial [free allocation] back, but guess what will happen then? It's really hard to see that changing. Because this is political – it's just pure, raw politics.²¹³

Therefore, policy-makers' generosity with free allocation created a vested interest among industry stakeholders both in cap-and-trade and free allocation itself. Once free allocation was introduced, both the recipients and policy-makers had incentives to maintain the status quo.

6.6.4 Summary

The political discourse on BCAs for industrial facilities in California's cap-and-trade program took place in the context of countering carbon leakage, and the free allocation of emission allowances offers an alternative to that end. WSPA, CalChamber, and CMTA, which all opposed BCAs for industrial facilities, preferred free allocation to these measures. In fact, no industry stakeholder preferred BCAs for industrial facilities to free allocation. Even the cement industry, a supporter of a BCA on imports of cement, did not want to forego free allocation in exchange for a BCA. In consequence, also the ARB preferred free allocation to BCAs for industrial facilities.

There are several reasons for these preferences. One explanation is found in the different economic effects of BCAs and free allocation on downstream product prices. Compared to a BCA, free allocation results in lower product prices for downstream consumers. The ability of free allocation to limit increases in downstream product prices appealed to industry stakeholders that experienced relatively elastic demand for their products. This effect also appealed to policy-makers for political reasons because they sought to avoid making the costs of California's climate policies visible to voters.

Perhaps the most important reason why industry stakeholders preferred free allocation to BCAs for industrial facilities is found in the generosity and ensuing inertia of free allocation.

²¹³ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

By introducing free allocation at overgenerous levels, policy-makers created a vested interest among industry stakeholders both in cap-and-trade and free allocation itself. Subsequently, both the recipients of free allocation and policy-makers had incentives to maintain the status quo. Given the enormous financial value of these free allowances, industry stakeholders, particularly the principal beneficiaries of the oil and gas industry and the cement industry, did not want to risk losing the free allocation of allowances. Industry stakeholders also preferred a known, existing system to address carbon leakage through free allocation and resisted a change to an unknown approach using BCAs. Policy-makers, invested in their system of free allocation and cognizant of the political advantages of free allocation, similarly resisted such a change. As a result, the ensuing economic, political, and institutional inertia of free allocation created a path dependency that led to the perpetuation of free allocation.

In conclusion, industry stakeholders preferred free allocation to BCAs for industrial facilities because of the different economic effects of these alternative measures on downstream product prices and, perhaps most importantly, because of the generosity and ensuing inertia of free allocation. As a result, a preference for free allocation among industry stakeholders and, in turn, policy-makers explains the absence of BCAs for industrial facilities in California's cap-and-trade program.

6.7 Domestic Political Opposition

This part examines whether domestic political opposition led to the absence of BCAs for industrial facilities in California's cap-and-trade program. The discussion first offers an overview of stakeholders and their positions (section 6.7.1). The discussion then considers the impact of these attitudes on the policy outcome (section 6.7.2). As will be seen, overwhelming opposition to BCAs for industrial facilities in combination with limited demand for these measures explains their absence in California's cap-and-trade program.

6.7.1 Stakeholders and Their Positions

The supporters of BCAs for industrial facilities comprised the cement industry and the California State Senate. Opposition to these measures came from CalChamber, CMTA, WSPA, the ARB, and the governor’s office. NGOs, including the NRDC and the EDF, did not focus their advocacy on BCAs for industrial facilities and were neither opposed to nor supportive of these measures. Table 6 offers an overview of stakeholders and their positions on BCAs for industrial facilities.

Table 6: Domestic stakeholder positions in the California industrial facilities case

Opposition	Support
CalChamber (umbrella association)	CSCME (cement industry)
CMTA (manufacturing industry)	
WSPA (oil and gas industry)	

The cement industry in California supported a BCA on imports of cement. In fact, the CSCME, which represents all cement manufacturers with facilities in California, has supported a BCA on imports of cement since the design phase of the cap-and-trade program.²¹⁴

The significance of imports from other countries explains the cement industry’s support for a BCA on imports of cement. In an analysis of the carbon leakage risk in different industry sectors, the ARB identified the cement industry in California as highly import-oriented.²¹⁵ Indeed, California’s cement industry experienced significant imports from other countries over the years.²¹⁶ Imports of cement and cement clinker peaked in 2006 when they

²¹⁴ See e.g. Letter from CSCME to EAAC in 2009, *supra* note 45 at 1, 4; Letter from CSCME to ARB, *supra* note 44 at 2, 10; ARB, “FSor”, *supra* note 77 at 284, 318; Coalition for Sustainable Cement Manufacturing & Environment, Letter from Chairman John T. Bloom, Jr. to California Air Resources Board Mihoyo Fuji (20 February 2014).

²¹⁵ See ARB, “ISor”, *supra* note 22 at K-23.

²¹⁶ Note that data on imports from other US states is not available; see ITA, *supra* note 53, who note that “the trade data do not provide information to track or monitor interstate flows”; also e-mail from Brian Schmidt, Portland Cement Association (15 August 2018); interview of an academic (2 November 2017).

were equivalent to 63% (6.9m tonnes) of in-state production. Both imports and in-state production declined significantly during the economic downturn of 2008 and 2009. While in-state production recovered from 2010 onwards, imports continued to decrease until 2012. Since then, however, imports have increased steadily, reaching a level equivalent to 14% (1.4m tonnes) of in-state production in 2017.²¹⁷

Although the cement industry initially supported a BCA on imports of cement in the negotiations on the extension of the cap-and-trade program in the summer of 2017, the industry, in fact, dropped the issue during those talks once Governor Brown indicated his opposition to BCAs.²¹⁸ Strategic considerations offer possible explanations for this shift of position: due to a preference for free allocation, the cement industry may not have wanted to forego free allocation in exchange for a BCA;²¹⁹ cognizant that BCAs are one of several policy elements in the negotiations, the cement industry may have preferred to “keep a united front” with other industry groups that opposed BCAs;²²⁰ the cement industry also may not have wanted to jeopardize the good working relationship it, like other interest groups, enjoyed with the ARB and thus may not have wanted to “rock the boat” on this issue.²²¹

Additional support for BCAs in the cap-and-trade program came from the California State Senate. For instance, supported by Senate President Pro Tempore de León, State Senator Wieckowski introduced SB 775, which proposed a series of significant changes to the cap-and-trade program, including the use of BCAs for industrial facilities in lieu of free allocation.²²² Several interviewees emphasized that the State Senate was keen on including BCAs for industrial facilities in SB 775,²²³ and there was support from the State Senate for

²¹⁷ Data provided via e-mails from Brian Schmidt, Portland Cement Association (20 July 2018, 25 July 2018, 15 August 2018).

²¹⁸ Interviews of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017) and Michael Wara, Professor of Law, Stanford University (31 October 2017).

²¹⁹ Interview of an anonymous source (9 November 2017); for more information on the cement industry’s preference for free allocation, see part 6.6, above.

²²⁰ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²²¹ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

²²² See Kahn, “Senate Leader Proposes Big Changes”, *supra* note 17.

²²³ Interviews of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017), Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State

these measures in the negotiations on the extension of the cap-and-trade program through 2030.²²⁴

While the cement industry and the California State Senate supported BCAs for industrial facilities, there was, in the words of a staffer from the California State Assembly, “no big pro-border adjustment lobby out there.”²²⁵ In fact, the cement industry was the only sector in California that showed interest in developing BCAs for industrial facilities.²²⁶ Similarly, a staffer from the California State Senate noted that there were no stakeholders or policy-makers who were willing to make BCAs for industrial facilities an indispensable condition for a deal on the extension of the cap-and-trade program through 2030.²²⁷ Indeed, even the scant support for these measures during those negotiations was “tepid”²²⁸ as “none of the main industry [stakeholders] was really clamouring for [them].”²²⁹

In fact, most industry stakeholders opposed BCAs for industrial facilities. An interviewee noted that “outside of a very small subset of parties, there was universal resistance” to BCAs for industrial facilities in the negotiations on the extension of the cap-and-trade program through 2030.²³⁰ This opposition, however, was not exercised in an overly visible manner. A cap-and-trade market expert explained that the topic of BCAs for industrial facilities “just has not been active enough of an issue that there would be a lot of stakeholders who have vocal opinions about it.”²³¹ Two industry spokespersons confirmed this perception, with one of them noting: “The discussion about border adjustment did not go

Assembly (19 October 2017), an industry spokesperson (17 October 2017), and an anonymous source (9 November 2017).

²²⁴ See US, California State Senate Committee on Environmental Quality, *Analysis of Bill AB 398* (10 July 2017) (2017) at 11.

²²⁵ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

²²⁶ Interview of an anonymous source (9 November 2017); also interview of an industry representative (30 October 2017).

²²⁷ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

²²⁸ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²²⁹ Interview of a representative of the environmental community (16 November 2017).

²³⁰ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²³¹ Interview of a cap-and-trade market expert (29 November 2017).

far enough (...). It really never got enough traction. (...) It has never been a big enough issue to create a big fight.”²³² A staffer from the California State Senate also indicated that “it never got to the point where there was a serious discussion about [BCAs for industrial facilities].”²³³

Industry stakeholders opposing BCAs for industrial facilities included the following associations: CalChamber, which represents over 13,000 members from a wide range of businesses that include oil and gas producers, manufacturing industries, and other industrial consumers of electricity; CMTA, which represents manufacturing industries; and WSPA, which represents the oil and gas industry.²³⁴

There are several reasons for this opposition. Industry stakeholders opposed BCAs for industrial facilities because they sought the continued use of free allocation.²³⁵ They also opposed due to corporate structures and industrial supply chains that extend beyond California. Because industries covered by the cap-and-trade program also have operations outside of California, a BCA for industrial facilities would impose a carbon price on their exports into the state. An industry spokesperson elaborated:

We represent some of the largest companies in the state as well as internationally. Many of them have a global presence and also have facilities here in California. They are very interested in what the market is like here also because they sell into this state. (...) I don’t think there’s a facility in California that’s covered by cap-and-trade and not also part of a national or international family of companies. Most companies are owned by something that’s bigger. I can’t think of one that’s not.²³⁶

Similarly, some industries source carbon-intensive intermediate products from out-of-state and a BCA on these products would lead to price increases.²³⁷ Price increases from a

²³² Interview of an industry spokesperson (17 October 2017); also interview of an industry spokesperson (19 October 2017).

²³³ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

²³⁴ Interviews of an industry spokesperson (19 October 2017), an industry spokesperson (17 October 2017), Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017), Michael Wara, Professor of Law, Stanford University (31 October 2017), and an academic (2 November 2017).

²³⁵ See part 6.6, above.

²³⁶ Interview of an industry spokesperson (17 October 2017).

²³⁷ *Ibid.* The interviewee preferred not to reveal the specific industries concerned.

BCA on imported intermediate products would not only lead to cost increases for in-state producers but may, in turn, also be reflected in increased product prices for downstream consumers.²³⁸ An industry spokesperson emphasized: “The supply chains are vast. They are interrelated. They are webs. And they are important for competitive purposes.”²³⁹ Also an academic noted that “there are [businesses] that have production facilities both in California and out-of-state,” which means these industries have “complicated incentives” because they need to weigh the interests of their in-state operations against their out-of-state operations.²⁴⁰ In fact, opponents of BCAs for industrial facilities even opposed the development of BCAs for other sectors due to fears that these measures could subsequently be implemented for their industries.²⁴¹ Concerned about a “slippery slope dynamic,” an industry spokesperson explained: “There is a fear that if you have a border carbon adjustment for one industry that wants it, [the ARB] might impose it on other industries that do not necessarily want that.”²⁴² Indeed, there were indications that this concern was not unfounded given that the ARB framed its consideration of a BCA on imports of cement as a “pilot project” and called the cement industry the “first sector for consideration.”²⁴³

Besides the vast majority of industry stakeholders, the ARB and the governor’s office also opposed BCAs for industrial facilities. At the time of the interviews in the fall 2017, there was a profound sense that neither the ARB nor the governor’s office had any interest in developing BCAs for industrial facilities.²⁴⁴ In the negotiations on the extension of the cap-and-trade program through 2030, the ARB “strongly opposed” BCAs for industrial facilities,

²³⁸ Interview of an academic (2 November 2017).

²³⁹ Interview of an industry spokesperson (17 October 2017).

²⁴⁰ Interview of an academic (2 November 2017).

²⁴¹ Interview of an industry spokesperson (19 October 2017).

²⁴² *Ibid.*

²⁴³ ARB, *Resolution 10-42*, *supra* note 14 at 4; ARB, “BCA for Cement”, *supra* note 15 at 4. In fact, the ARB even indicated it would subsequently investigate a BCA on imports of transportation fuels to cover out-of-state refinery emissions; see US, California Air Resources Board, *Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Final Statement of Reasons* (May 2014), online: ARB <<https://www.arb.ca.gov/>> (retrieved 30 June 2017) at 184. There is no evidence, however, that any such work actually took place.

²⁴⁴ Interviews of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017), Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017), and Michael Wara, Professor of Law, Stanford University (31 October 2017).

and the governor's office opposed as well.²⁴⁵ In fact, "based on the current staff at the ARB and its current membership," a staffer from the California State Senate shared, "there seems to be significant antipathy toward [BCAs for industrial facilities at the ARB]."²⁴⁶ Given the ARB's lack of interest in BCAs for industrial facilities, an interviewee questioned the significance of AB 398's provision requiring the ARB to evaluate BCAs by the end of 2025: "I don't think [this provision] has any meaningful bite. (...) The ARB is on the record in the negotiations saying: 'We do not want to do this. We think this is a bad idea.' And you are charging the agency that already has developed a view about what they think with consideration of the topic?"²⁴⁷

The ARB and the governor's office opposed BCAs for industrial facilities due to overwhelming stakeholder opposition in combination with limited stakeholder demand for these measures.²⁴⁸ For instance, referring to the ARB's opposition to BCAs for industrial facilities in the negotiations on the extension of the cap-and-trade program through 2030, an interviewee noted that "the ARB was responding to the negative views around BCAs that the oil industry held."²⁴⁹ Similarly, according to a staffer from the California State Assembly, "history suggests that the ARB may end up bowing to pressure from industry."²⁵⁰

NGOs did not focus their advocacy on BCAs for industrial facilities. Although the NRDC and the EDF were not opposed to these measures, they did not support them either. An interviewee described big NGOs as "kind of neutral" on BCAs for industrial facilities in the negotiations on the extension of the cap-and-trade program through 2030.²⁵¹ Throughout the interviews, it became clear that NGOs did not pay particular attention to the issue of

²⁴⁵ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017); also interviews of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017) and a representative of the environmental community (16 November 2017).

²⁴⁶ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

²⁴⁷ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁴⁸ See part 6.6, above.

²⁴⁹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁵⁰ Interview of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017).

²⁵¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

BCAs for industrial facilities. In fact, neither the NRDC nor the EDF had an official position on BCAs for industrial facilities.²⁵² Furthermore, although a group of NGOs urged the ARB in 2012 to carry out research on BCAs for industrial facilities, this succinct request for further investigation was the last point in a lengthy letter that did not include any further explanation on this issue and, importantly, did not amount to an endorsement of BCAs for industrial facilities.²⁵³ While NGOs would be generally expected to support BCAs for industrial facilities due to their anticipated environmental benefits, the lack of support for these measures may be explained by a focus on other advocacy issues they deemed more important.

6.7.2 Impact of Stakeholder Attitudes

Stakeholders' attitudes concerning BCAs for industrial facilities were causal for both the limited developments towards and the prevailing absence of BCAs for industrial facilities in California's cap-and-trade program. According to two interviewees, the cement industry's advocacy prompted the ARB to consider a BCA on imports of cement.²⁵⁴ Furthermore, several sources indicated that AB 398's provision requiring the ARB to evaluate BCAs by the end of 2025 was included due to the California State Senate's and cement industry's support for these measures.²⁵⁵ Similarly, other interviewees confirmed that this provision was inserted to appease the supporters of BCAs.²⁵⁶

Although having prompted the ARB to consider a BCA on imports of cement and secured AB 398's provision requiring the ARB to evaluate BCAs in the future, however, the support for these measures was not sufficient to actually put them in place. In fact, numerous

²⁵² Interviews of a representative of the environmental community (16 November 2017) and a cap-and-trade market expert (29 November 2017).

²⁵³ See Letter from NGOs to ARB, *supra* note 123 at 4.

²⁵⁴ Interviews of an industry spokesperson (19 October 2017) and an anonymous source (9 November 2017).

²⁵⁵ Interviews of Lawrence Lingbloom, Chief Consultant, Committee on Natural Resources, California State Assembly (19 October 2017), an industry spokesperson (17 October 2017), and an anonymous source (9 November 2017).

²⁵⁶ Interviews of an industry representative (30 October 2017) and a representative of the environmental community (16 November 2017).

interviewees indicated that overwhelming stakeholder opposition to BCAs for industrial facilities, in combination with limited stakeholder demand for these measures, was causal for the absence of BCAs for industrial facilities in California's cap-and-trade program.

When asked about the reason for the absence of BCAs for industrial facilities in the cap-and-trade program, an industry spokesperson pointed to political influences by citing "resistance."²⁵⁷ Likewise, referring to lobbying influence in the negotiations on the extension of the cap-and-trade program through 2030, a staffer from the California State Senate indicated that "the calculus was a straight political one."²⁵⁸ Other interviewees also confirmed that the policy outcome was due to opposition from influential stakeholders.²⁵⁹ In fact, several sources highlighted the oil and gas industry as a politically powerful and dominant force in California.²⁶⁰ One interviewee emphasized: "At bottom, [the oil industry] did not like the idea of a BCA."²⁶¹ Moreover, a representative of the environmental community considered the introduction of BCAs for industrial facilities "politically challenging without any support from industry."²⁶²

The powerful lobbying muscle of opponents of BCAs for industrial facilities is illustrated by the large sums they spent on influencing policy-making in California, particularly the state's environmental policies, including the cap-and-trade program.²⁶³ With \$8.5m, WSPA ranked second for lobbying expenses in 2012.²⁶⁴ Other opponents of BCAs for industrial facilities also spent large sums on lobbying in that year, namely CalChamber with \$6.7m and CMTA with \$4.6m. Together with oil and gas company Chevron, these

²⁵⁷ Interview of an industry spokesperson (17 October 2017).

²⁵⁸ Interview of Kip Lipper, Chief Policy Advisor on Energy and Environment, California State Senate (17 October 2017).

²⁵⁹ Interviews of an industry representative (30 October 2017) and Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁶⁰ Interviews of a representative of the environmental community (16 November 2017), Michael Wara, Professor of Law, Stanford University (31 October 2017), Danny Cullenward, Research Associate, Carnegie Institution for Science (31 October 2017), and an industry representative (30 October 2017).

²⁶¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

²⁶² Interview of a representative of the environmental community (16 November 2017).

²⁶³ See Anne C Mulkern, "Oil Lobby, Allies Spend \$25M as They Push Against Climate Law", *E&E News* (6 February 2013), online: E&E News <<https://www.eenews.net/>>.

²⁶⁴ With expenses of \$8.7m, only the California State Council of Service Employees, the union for state employees, spent more in that year; see *ibid.*

stakeholders spent over \$25m on lobbying in 2012 alone. Similarly, between 2015 and the first quarter of 2017, WSPA and several oil and gas companies spent over \$34m on lobbying, with indications that much of the funds in 2017 were used for influencing the negotiations on the extension of the cap-and-trade program through 2030.²⁶⁵ Having spent over \$20m on advocacy during that time, “WSPA led the companies, and the oil sector, on spending,” which “shows the influential arc of the fossil fuel industry” in California.²⁶⁶

It remains unclear whether political opposition would have persisted if, hypothetically, free allocation had not been available as an alternative to BCAs for industrial facilities. The policy outcome would likely depend on the extent of domestic political opposition from industries with corporate structures and supply chains that extend beyond the state. As long as such opposition proves to be prohibitive, policy-makers would not adopt BCAs for industrial facilities.

In sum, while there were a small number of supporters, the vast majority of stakeholders and, in turn, policy-makers opposed BCAs for industrial facilities. In fact, the cement industry and the California State Senate were the only supporters. Opposition came from influential stakeholders, which included WSPA, CalChamber, and CMTA, as well as the ARB and the governor’s office. Although the NGOs NRDC and EDF were not opposed to BCAs for industrial facilities, they did not support these measures either. In fact, the overwhelming opposition to BCAs for industrial facilities, in combination with limited demand for these measures, was causal for the absence of BCAs for industrial facilities in California’s cap-and-trade program. As a result, domestic political opposition explains the policy outcome.

²⁶⁵ Anne C Mulkern, “Businesses Spent Millions Lobbying Before Cap-and-Trade Vote”, *E&E News* (26 July 2017), online: E&E News <<https://www.eenews.net/>>.

²⁶⁶ *Ibid.* See also David Roberts, “California’s Cap-and-Trade System May Be Too Weak to Do Its Job”, *Vox* (12 December 2018), online: Vox <<https://www.vox.com/>>, who writes that the cap-and-trade program “was designed to please Big Oil” and that, “[a]t every juncture, the state’s oil industry has had enormous influence on program design.”

6.8 Conclusion

This chapter studied California's experience with BCAs for industrial facilities in its cap-and-trade program, which has been in operation since 2013. Although BCAs for industrial facilities have received some degree of attention in California over the years, the state has not applied any such measures in its cap-and-trade program to date. This chapter examined the factors leading to this policy outcome.

The evidence shows that overwhelming opposition to BCAs for industrial facilities in combination with limited demand for these measures explains their absence in California's cap-and-trade program. In fact, industry stakeholders preferred free allocation to BCAs for industrial facilities. There are several reasons for this preference. For one, this is due to corporate structures and industrial supply chains that extend beyond California. Because industries covered by the cap-and-trade program also have operations outside of California, a BCA for industrial facilities would impose a carbon price on their exports into the state. Furthermore, the ability of free allocation to limit increases in downstream product prices appealed to industry stakeholders. This effect also appealed to policy-makers for political reasons because they sought to avoid making the costs of California's climate policies visible to voters.

Perhaps the most important reason why industry stakeholders preferred free allocation to BCAs for industrial facilities is found in the generosity and ensuing inertia of free allocation. By introducing free allocation at overgenerous levels, policy-makers created a vested interest among industry stakeholders both in cap-and-trade and free allocation. Once free allocation was introduced, both its recipients and policy-makers had incentives to maintain the status quo. Given the tremendous financial value involved, industry stakeholders did not want to risk losing the free allocation of allowances, particularly the principal beneficiaries of the oil and gas industry and the cement industry. Industry stakeholders also preferred a known, existing system to address carbon leakage through free allocation and resisted a change to an unknown approach using BCAs. Policy-makers similarly resisted such a change because they were invested in their system of free allocation and cognizant of its political advantages. In consequence, the ensuing economic, political, and institutional inertia of free allocation created a path dependency that led to the continuation of free allocation.

By contrast, while the level of effort required to design legally compliant BCAs is unclear, there were no concerns about WTO law or the DCC among policy-makers that led to the absence of BCAs for industrial facilities in California's cap-and-trade program. Similarly, although the degree of complexity involved in implementing BCAs for basic industrial products is not entirely clear, the evidence indicates that concerns about their administrative complexity or effectiveness in countering carbon leakage did not prevent their introduction. Likewise, there were no fears of repercussions for international or US state-level relations that could explain the policy outcome. However, there are indications that opponents of BCAs for industrial facilities might have alleged and overstated concerns about WTO law, the DCC, and the administrative complexity of these measures to reinforce their opposition, despite legal experts' assertions and other evidence to the contrary.

California's experience with BCAs for industrial facilities in its cap-and-trade program shows that these measures may face considerable opposition from industry stakeholders, impeding any attempts from supporters to introduce them. What is more, the generosity with free allocation and its powerful inertia may lead to the perpetuation of this alternative measure at the expense of BCAs for industrial facilities.

The next and final chapter presents the research findings for each hypothesis based on the four case studies and offers recommendations for policy-makers about the adoption and implementation of BCAs in practice.

7 Conclusion: The Narrow Scope for Applying Border Carbon Adjustments in Practice

7.1 Introduction

This dissertation has asked why border carbon adjustments (BCAs) are largely absent in practice, despite their potentially substantial benefits, their backing from prominent leaders, and an increasing number of carbon-pricing policies having been adopted throughout the world. In order to investigate this question, several hypotheses have been tested across four case studies. This final chapter concludes by highlighting the case studies' key findings and by comparing experiences with BCAs across these cases to generate evidence-based insights about the adoption and implementation of BCAs. These lessons aim to help inform the decision-making of policy-makers who are considering the development of BCAs.

The following case studies examined the experiences with and attitudes towards BCAs: (1) the inclusion of international flights in the EU's cap-and-trade program, (2) stationary installations in the EU's cap-and-trade program, (3) the inclusion of electricity imports in California's cap-and-trade program, and (4) industrial facilities in California's cap-and-trade program. This selection comprises two jurisdictions (the EU and California), three economic sectors (manufacturing industry, electricity, and aviation), and six policy outcomes (two intermediate outcomes, four eventual outcomes). Two experiences concern BCAs as commonly envisioned (EU stationary installations, California industrial facilities), one a form of BCA (California electricity), and one a measure comparable to a BCA (EU aviation). The eight hypotheses tested were grouped in five clusters. Table 7 offers an overview of the study's findings, presented by hypothesis and for each policy outcome in all cases.

In terms of methodology, this research drew on information from 43 expert interviews and a wide range of published materials, including scholarly literature from different disciplines, government documents, and newspaper articles, as well as quantitative data from extant economic modelling and international trade statistics.

This chapter proceeds as follows. Parts 7.2 to 7.6 present the dissertation's main findings for each hypothesis: legal concerns about WTO law and the US DCC (part 7.2), practical concerns

Table 7: Barriers to adopting and implementing BCAs in each case

			POLICY OUTCOMES					
			EU			California		
			Aviation		Stationary installations (Debate only)	Electricity		Industrial facilities (Debate only)
			Adoption	Implementation		Adoption	Implementation	
HYPOTHESES	Legal concerns	WTO	Policy-makers considered and did not regard as obstacle	Policy-makers convinced that in compliance	Policy-makers aware that compliance can be ensured and did not regard as obstacle	Policy-makers considered and did not regard as obstacle	No evidence it played any role	Policy-makers considered and did not regard as obstacle
		DCC	Not applicable	Not applicable	Not applicable	Policy-makers considered and did not regard as obstacle	No evidence it played any role	Policy-makers considered and did not regard as obstacle
	Practical concerns	Administrative complexity	Relatively simple and straightforward	Relatively simple and straightforward	Policy-makers considered practically feasible	Policy-makers adopted pragmatic and relatively straightforward approach	No evidence of such concerns	Policy-makers considered practically feasible
		Effectiveness	No evidence of such concerns	No evidence of circumvention	No evidence of such concerns	Policy-makers aware of concerns, but confident could be addressed in implementation	Policy-makers unable to prevent circumvention	No evidence of such concerns
	Repercussions for governmental relations	Trade war and retaliation	No international opposition	Strong international opposition consisting of threats and retaliation	Threats of retaliation, particularly from developing countries	No opposition from other governments, and no fear among policy-makers or stakeholders	No opposition from other governments, and no fear among policy-makers or stakeholders	No opposition from other governments, and no fear among policy-makers or stakeholders
		Hampering climate efforts	Minor concerns at the most, if any	Minor concerns at the most, if any	Policy-makers showed some concern, although likely not decisive	No evidence of such concerns	No evidence of such concerns	No evidence of such concerns
	Alternative measures		Policy-makers did not prefer any alternative measures	No alternative measures put in place	Industry stakeholders and policy-makers preferred free allocation	Policy-makers identified no preferable alternative measures	No alternative measures put in place	Industry stakeholders and policy-makers preferred free allocation
	Domestic political opposition		Strong support from policy-makers overcame domestic opposition	Opposition from key domestic stakeholders	Only limited support, most stakeholders and policy-makers opposed	Strong coalition of policy-makers and NGOs overcame domestic opposition	Opposition from group of major utilities	Only limited support, most stakeholders and policy-makers opposed

Barrier
Not a barrier

about the administrative complexity of BCAs or their effectiveness (part 7.3), fears of repercussions for governmental relations (part 7.4), a preference for alternative measures (part 7.5), and domestic political opposition (part 7.6). Part 7.7 discusses these findings to produce additional insights from this research. Part 7.8 concludes by summarizing the research results, offers recommendations for policy-makers, addresses the study's limitations, and suggests areas for further research.

7.2 Legal Concerns

There is strong evidence from all case studies that WTO law did not prevent the adoption or implementation of any BCAs. Therefore, WTO law was no barrier to BCAs. Likewise, evidence from both case studies in California shows that the DCC did not prevent the adoption or implementation of any BCAs. Thus, the DCC was no barrier to those BCAs either.

In addition, none of the policy outcomes in any of the cases was driven by the false belief among policy-makers that designing BCAs in compliance with WTO law or the DCC would not be possible.¹ No evidence was found of any such false belief among policy-makers. In fact, in all cases, policy-makers were keen not to violate the applicable legal regimes, namely WTO law in the EU, and WTO law and the DCC in California. Policy-makers carefully considered the relevant legal questions and were convinced that BCAs could meet the legal requirements of those regimes.² While legal concerns did not prevent the adoption or implementation of BCAs in these cases, there is incomplete information about the level of effort required to design BCAs in compliance with WTO law and the DCC.

In the cases in which BCAs were first adopted before being suspended (EU aviation) or weakened (California electricity) during implementation, no cases were brought on the grounds of WTO law or the DCC.

¹ See parts 3.3, 4.3, 5.3, and 6.3, above.

² Although California is not a WTO member itself, its policy-makers were intent on complying with WTO law to ensure the legal viability of California state law.

The evidence suggests that some opponents of BCAs alleged legal concerns to reinforce their opposition. Opponents appeared to have used legal concerns about WTO law and the DCC as smoke screens and to cast doubt on whether the design of BCAs in compliance with these legal regimes is possible, despite assertions to the contrary from legal experts. Evidence to this effect was found in three cases (EU stationary installations, California industrial facilities, California electricity).³

7.3 Practical Concerns

7.3.1 Administrative Complexity

There is strong evidence across all cases and policy outcomes that concerns about administrative complexity did not prevent the adoption or implementation of any BCAs. Therefore, such concerns were not barriers to BCAs.

In the cases in which BCAs were first adopted before being suspended (EU aviation) or weakened (California electricity) during implementation, policy-makers were able to apply relatively simple and straightforward approaches to implement and administer these measures.⁴ This was the case even when policy-makers faced practical difficulties, such as in the case of California electricity.⁵ Furthermore, the subsequent weakening or suspension of these BCAs was not due to concerns about their administrative complexity. In the cases in which BCAs were not adopted (EU stationary installations, California industrial facilities), concerns about the administrative complexity did not determine these policy outcomes.⁶ In fact, policy-makers both in the EU and California were convinced that concerns about the administrative complexity of implementing and administering BCAs for basic industrial products could be overcome. Even opponents of BCAs acknowledged that such measures would be practically feasible at least for basic industrial products.⁷ Although administrative

³ See part 4.3, section 5.3.2, and section 6.3.1, above.

⁴ See sections 3.4.1 and 5.6.1, above.

⁵ See section 5.6.1, above.

⁶ See sections 4.4.1 and 6.4.1, above.

⁷ See *ibid.*

concerns did not prevent the adoption or implementation of BCAs in these cases, the degree of complexity involved in implementing such measures is not entirely clear.

As with legal concerns, the evidence suggests that some opponents of BCAs alleged concerns about the administrative complexity of these measures to reinforce their opposition. Overstating the significance of practical difficulties, opponents appeared to have used these concerns to question whether implementing carbon pricing with BCAs is practically feasible, despite evidence to the contrary. All cases offered evidence to this effect.⁸

7.3.2 Effectiveness in Achieving the Potential Benefits of a BCA

There is clear evidence across all cases that concerns about the effectiveness in achieving the potential benefits of a BCA did not prevent the adoption of these measures. However, depending on the ease with which market participants were able to circumvent the BCA, such concerns posed a barrier to their implementation.

The case of California electricity was the only one in which concerns about the effectiveness of a BCA were present and indeed found to have been a barrier to the implementation of the measure.⁹ While policy-makers were already aware of these concerns before the adoption of the BCA, they were confident that these concerns could be addressed during the implementation of the measure. However, policy-makers were ultimately unable to overcome these difficulties during implementation. The only other case in which a BCA was adopted is the one of EU aviation. However, policy-makers had no concerns about the effectiveness of the BCA before its adoption. Likewise, but in contrast to the case of California electricity, there were no such effectiveness concerns that could explain the subsequent suspension of the BCA during its implementation.¹⁰

The factor that explained the different policy outcomes during the implementation in the cases of California electricity and EU aviation was the level of difficulty for market

⁸ See sections 3.4.1, 4.4.1, 5.6.1, and 6.4.1, above.

⁹ See section 5.6.2, above.

¹⁰ See section 3.4.2, above.

participants to bypass these measures. In the case of California electricity, circumvention of the BCA was facilitated by incomplete information on emissions of unspecified electricity in the electricity market as well as minimal transaction costs of sourcing electricity from different suppliers, which offered market participants opportunities for gaming.¹¹ By contrast, in the EU aviation case, the availability of accurate data on fuels, and thus emissions, limited compliance entities' opportunities for circumvention.¹²

In the two cases in which BCAs were not adopted, policy-makers had only limited concerns about the effectiveness in achieving the potential benefits of such a measure that did not prevent its adoption (EU stationary installations) or had no such concerns at all (California industrial facilities). In these cases, either policy-makers were confident in their ability to address these concerns during implementation, or the discussions of the BCAs did not advance far enough to raise more of these concerns.¹³

Since BCAs have not been adopted for manufacturing industries, in contrast to the electricity and aviation sectors, these measures and the risk of circumvention remain untested and uncertain for manufacturing industries. The case of California electricity suggests that the extent to which market participants circumvent a BCA that compromises its effectiveness may only become evident after the adoption of such a measure. Concerns about the circumvention of BCAs may also signal the limits of any one jurisdiction's leverage over regulating emissions in foreign markets.

7.4 Concerns about Repercussions for Governmental Relations

7.4.1 Fear of Trade War and Retaliation

The evidence shows that opposition from other governments prevented the adoption and implementation of BCAs in the EU cases. However, there is no evidence of any such

¹¹ See sections 5.6.1 and 5.6.2.1, above

¹² See section 3.4.1, above.

¹³ See sections 4.4.2 and 6.4.2, above.

opposition in the California case studies. Therefore, opposition from other governments was a barrier to BCAs in the EU but not in California.

Where opposition from other governments existed, namely in the two EU cases, it prevented the adoption (EU stationary installations) or implementation (EU aviation) of BCAs. Opposition from other governments also explains why, in the EU aviation case, policy-makers at first were able to adopt the BCA because this opposition only emerged during the implementation of the BCA following its adoption two years earlier.¹⁴ Similarly, in the case of EU stationary installations, opposition from other governments emerged in response to EU legislation that foresaw the possibility of introducing BCAs. Once policy-makers recommended not adopting BCAs, however, other governments no longer exercised that opposition.¹⁵ By contrast, there was no opposition from other governments in the two California cases.¹⁶

The degree of export-orientation of the jurisdiction's economy appeared to determine the existence of opposition from other governments and a corresponding fear of trade war and retaliation among policy-makers. This is because exports are the trade flows that other jurisdictions would target in retaliation to a BCA. The more export-oriented an economy, the more likely policy-makers were susceptible to threats and measures of retaliation, and the more likely a fear of trade war and retaliation played a role in determining the policy outcome. Stakeholders representing export-oriented sectors of the economy opposed BCAs for the same reason. By contrast, stakeholders representing import-oriented sectors were able to support BCAs because any retaliation would have limited effects on them.

This explains why policy-makers in the two EU cases (export-oriented economy) were worried about retaliation from other countries once retaliatory threats and measures emerged,¹⁷ and why policy-makers in the two California cases (import-oriented economy) showed no such concerns.¹⁸ It also explains why Germany (export-oriented) opposed BCAs

¹⁴ See section 3.6.1.2, above.

¹⁵ See section 4.5.1.1, above.

¹⁶ See sections 5.4.1.1 and 6.5.1, above.

¹⁷ See sections 3.6.1.2 and 4.5.1.2, above.

¹⁸ See sections 5.4.1.2 and 6.5.1, above.

for stationary installations but France (neutral balance of trade) was able to support such measures.¹⁹ Furthermore, it explains why Airbus (with exports of manufactured aircraft) and Lufthansa (with operations outside the EEA) were concerned about retaliatory measures on their businesses.²⁰ Likewise, the EU chemicals sector (export-oriented) opposed BCAs.²¹ By contrast, airlines operating predominantly within the EEA, such as Ryanair and EasyJet, were not vulnerable to retaliation.²² Similarly, California's cement industry (import-oriented) supported a BCA on imports of cement because the sector was not vulnerable to retaliation.²³ Moreover, due to concerns that their exports could be targeted by retaliation, stakeholders representing export-oriented industries also opposed the development of BCAs for other sectors. This was encountered in the case of EU stationary installations.²⁴

A jurisdiction's overall trade balance may offer a preliminary indicator of the likelihood of fears of trade war and retaliation playing a role for policy-makers. At the same time, the economy-wide balance of trade may not necessarily reflect the trade balance between a jurisdiction and one of its trading partners in particular. Therefore, the risk of retaliation ultimately depends on the trade flows between two individual trading partners, with significant exports offering foreign governments possible avenues for retaliation in response to a BCA.

With significant opposition from other governments, even an economically powerful and politically influential jurisdiction like the EU was unable to overcome such opposition. The opposition from foreign governments in the EU aviation case was significant in both breadth and depth, which prevented the implementation of the BCA even for a large economy and dominant political player like the EU.²⁵

¹⁹ See section 4.7.1, above.

²⁰ See sections 3.6.1.1 and 3.7.1, above.

²¹ See section 4.7.1, above.

²² See section 3.7.1, above.

²³ See section 6.7.1, above.

²⁴ See section 4.5.1.2, above.

²⁵ See section 3.6.1, above.

7.4.2 Fear of Hampering International Climate Efforts

The evidence shows that concerns among policy-makers about hampering international climate efforts were limited at the most. If anything, any such fears acted as a minor barrier to BCAs and depended on the level of government of the jurisdiction putting in place or considering a BCA. Such concerns played only a minor role for policy-makers from nation states or supranational organizations, while it played no role at all for those of subnational jurisdictions.

This was evident in both EU cases.²⁶ Although policy-makers from a nation state or supranational organization could be worried about hampering international climate efforts to some extent, such concerns only played a minor role, if any, in these cases. For policy-makers from a subnational jurisdiction, which has no formal role in international climate negotiations, such concerns are likely to play an even lesser role, if any. This was evident in the two California cases, in which policy-makers showed no such worries, even if its leaders sought to engage in climate diplomacy and assert the state as a quasi-nation state in the area of climate policy-making.²⁷

7.5 Alternative Measures

There is consistent evidence that BCAs were not put in place whenever free allocation was available as an alternative measure, and that the presence of free allocation as an alternative measure explains the absence of BCAs. Therefore, free allocation was a barrier to the adoption of BCAs. Although all case studies concerned cap-and-trade systems, output-based credits offer an equivalent alternative to BCAs under a carbon tax.²⁸

²⁶ See sections 3.6.2 and 4.5.2, above.

²⁷ See sections 5.4.2 and 6.5.2, above.

²⁸ See Lawrence H Goulder & Andrew R Schein, “Carbon Taxes Versus Cap and Trade: A Critical Review” (2013) 4:3 *Climate Change Economics* 1 at 8-9, who point out that the existence of this equivalent alternative as part of a carbon tax is “seldom recognized.” Output-based credits for industrial facilities are foreseen, for instance, in Canada’s federal “Output-Based Pricing System,” which is a form of carbon taxation designed to apply to provinces or territories that do not have their own carbon pricing in place; see Canada, *Greenhouse Gas Pollution Pricing Act*, SC 2018, c 12, s 186, Part 2.

The availability of free allocation as an alternative in a cap-and-trade system depends on the purpose policy-makers intend to use BCAs. Free allocation offers an alternative to BCAs where policy-makers aim to address the nexus of competitiveness concerns and carbon leakage. However, where the goal is to increase the coverage of carbon pricing by imposing a carbon price on emissions associated with imports – in other words, to extend a policy’s scope, and thus its environmental reach, beyond the domestic domain – free allocation cannot achieve that aim and therefore offers no alternative to BCAs. In the cases of manufacturing industries in the EU and in California, where policy-makers sought to address competitiveness and leakage concerns, free allocation was available as an alternative to BCAs. In these cases, stakeholders and, in turn policy-makers, preferred free allocation to BCAs. This prevented the adoption of BCAs.²⁹ By contrast, in the cases of EU aviation and California electricity, free allocation was not available as an alternative measure to maximize the scope, and thus the environmental reach of the policy. Therefore, free allocation was unable to act as a barrier in these cases.³⁰

The reason for stakeholders’ preference for free allocation is found in the overgenerous levels of free allocation as well as the ensuing economic, political, and institutional inertia, which created a path dependency that led to its perpetuation.³¹ Economically, free allocation limits increases in downstream product prices, which appealed to industry stakeholders that experienced relatively elastic demand for their products. It also appealed to policy-makers who sought to avoid making the costs of climate policies visible to voters. Importantly, free allocation also offered other political advantages to policy-makers. Enabling them to control the distributional impacts under cap-and-trade, policy-makers were able to “buy off” compliance entities. Indeed, the levels of compensation policy-makers offered industry stakeholders through free allocation appeared to be overgenerous. This generosity created a vested interest not only in cap-and-trade, but also in free allocation itself. Once free allocation was introduced, recipients did not want to risk losing its benefits given the enormous financial value of free allowances. In addition, both industry stakeholders and

²⁹ See parts 4.6 and 6.6, above.

³⁰ See parts 3.5 and 5.5, above.

³¹ See part 4.6 and section 6.6.3, above.

policy-makers resisted a change from a known, existing system of free allocation to a new and unknown approach using BCAs. Therefore, both the recipients of free allocation and policy-makers had incentives to adopt free allocation and maintain the status quo once it was introduced. This explains why generous levels of free allocation persisted despite policy-makers' assertions that this form of assistance was transitional and would be phased out over time.

In fact, driven by these reasons, industry stakeholders even opposed the development of BCAs for other sectors to prevent these measures from subsequently being implemented for their own industries. This was encountered in the case of California industrial facilities.³²

Where free allocation was available as an alternative measure to BCAs, namely in the cases of EU stationary installations and California industrial facilities, there were divergent views among stakeholders about whether or not BCAs and free allocation are mutually exclusive alternatives or may be applied in combination.³³ Industry stakeholders viewed these measures as complementary and were not willing to forego free allocation in exchange for BCAs. NGOs, by contrast, saw BCAs and free allocation as mutually exclusive alternatives. Policy-makers either considered them mutually exclusive, which was the case in the EU, or were open to putting BCAs in place in addition to free allocation as long as industry would not be overcompensated for their compliance costs, which was the case in California.

7.6 Domestic Political Opposition

There is strong evidence from all case studies and policy outcomes that the presence or absence of domestic political opposition determined the policy outcome. In other words, domestic political opposition acted as a barrier to BCAs. In general, there was only scant support for BCAs from a limited number of stakeholders, while an overwhelming number of stakeholders opposed BCAs.

³² See section 6.7.1, above.

³³ See part 4.6 and section 6.6.1, above.

In all case studies, domestic political opposition consistently prevented the implementation of BCAs.³⁴ In the two cases with intermediate policy outcomes, in which BCAs were first adopted and later on suspended (EU aviation) or weakened (California electricity), strong support for these measures from policy-makers (and NGOs in the case of California electricity) was able to overcome domestic political opposition temporarily. During implementation, however, domestic political opposition led to the eventual policy outcome. Therefore, the temporary absence of domestic political opposition enabled the adoption of BCAs in the two intermediate policy outcomes.³⁵

Several factors determined stakeholders' attitudes towards BCAs. Domestic political opposition flowed from stakeholders' actual or potential exposure to retaliation from other countries and their preference for free allocation where this alternative was available.³⁶ In addition, stakeholders' exposure to the carbon price under a BCA also determined their attitudes towards BCAs. For instance, in the case of EU aviation, airlines that operated mostly within the EEA supported the extension of the cap-and-trade program to flights outside the EEA because the extension left most of their flights unaffected. However, the extension was opposed by airlines operating long-haul flights between the EEA and third countries because it put in place a carbon price for flights outside of the EEA.³⁷ In the case of California electricity, producers of in-state electricity supported the BCA, while importers of electricity from carbon-intensive sources opposed the measure. The BCA did not increase costs for the former but exposed the latter to carbon pricing for its imports.³⁸ In the cases of EU stationary installations and California industrial facilities, import-oriented industries supported BCAs to fend off competition from abroad. By contrast, opposition came from industries with corporate structures and industrial supply chains extending beyond these

³⁴ See parts 3.7, 4.7, 5.7, and 6.7, above.

³⁵ See section 3.7.2 and part 5.7, above.

³⁶ See section 7.4.1 and part 7.5, above.

³⁷ See section 3.7.1, above.

³⁸ See part 5.7, above.

jurisdictions because products from installations owned by the same stakeholder but located abroad and exported into the jurisdiction would face the carbon price under a BCA.³⁹

Policy-makers supported BCAs in the cases of EU aviation and California electricity but opposed them in the cases of EU stationary installations and California industrial facilities. The reason for this difference lies in stakeholders' preference for free allocation, which was available in the latter two cases but not in the former two.⁴⁰ NGOs' attitudes towards BCAs were diverse and depended on the motivation behind such measures. Where environmental concerns were in the foreground, NGOs supported BCAs. Where competitiveness concerns were in the foreground, NGOs did not support or even opposed BCAs. For instance, in the cases of EU aviation and California electricity, in which the BCAs were mainly motivated by a desire to maximize the reach of the carbon price, NGOs strongly supported the BCAs.⁴¹ By contrast, in the cases of EU stationary installations and California industrial facilities, the BCAs were mainly motivated by a desire to address competitiveness and carbon leakage concerns. NGOs in California were not opposed to BCAs but did not support such measures either.⁴² NGOs in the EU showed skepticism and even opposition towards BCAs due to doubts about the significance or incidence of carbon leakage and because of concerns about retaliation from other countries.⁴³

7.7 Discussion

Although the extant theory predicts that domestic industry stakeholders would support BCAs since these measures can protect their competitiveness,⁴⁴ this research has shown that domestic industries overwhelmingly opposed BCAs. This is because they preferred free allocation. They also opposed because BCAs may result in a stakeholder's increased exposure to carbon pricing, and export-oriented industries feared trade war and retaliation

³⁹ See sections 4.7.1 and 6.7.1, above.

⁴⁰ See part 7.5, above.

⁴¹ See section 3.7.1 and part 5.7, above.

⁴² See section 6.7.1, above.

⁴³ See section 4.7.1, above. For concerns about retaliation, see section 7.4.1, above.

⁴⁴ See section 2.2.3, above.

from other jurisdictions. In fact, by opposing BCAs, export-oriented sectors provided a domestic channel for threats of trade war and retaliation from other jurisdictions. This way, domestic stakeholders effectively acted as an internal lobby on behalf of foreign interests. What is more, compared to BCAs, free allocation offered policy-makers political advantages because it limited increases in downstream product prices and enabled them to “buy off” industry stakeholders with overgenerous allocations. Furthermore, while the extant theory suggests that NGOs would support BCAs due to their ability to counter carbon leakage and potential to incentivize other jurisdictions to take climate action, NGOs supported BCAs only where environmental concerns were in the foreground and opposed these measures where the focus was to address competitiveness concerns.

Some degree of overlap exists between the barriers that prevented the adoption and implementation of BCAs. Domestic political opposition is closely related to stakeholders’ preference for alternative measures and their fear of trade war and retaliation. Domestic political opposition may flow from this preference and fear. At the same time, there are also other sources of domestic political opposition, for instance where a BCA leads to an increase in a stakeholder’s exposure to carbon pricing.

Comparing the initial policy outcomes in the two EU case studies, it appears striking that the EU adopted a BCA in the aviation case but none for stationary installations. The explanation for this difference is found in domestic political opposition that was predicated upon the availability of alternative measures and fears of trade war and retaliation. In the EU aviation case, strong support from the European Parliament and the European Commission was able to overcome domestic political opposition initially. For stationary installations, however, there never was sufficient support for BCAs to begin with, due to preferences for free allocation and fears of trade war and retaliation. For aviation, no alternative measure was available to increase the coverage of the cap-and-trade program by extending its scope, and thus environmental reach, beyond the domestic domain. However, for stationary installations, stakeholders preferred free allocation to BCAs as an alternative to address the nexus of competitiveness concerns and carbon leakage. Regarding fears of trade war and retaliation, third country opposition to the aviation BCA only emerged during its implementation, which explains why the EU was able to pass it into law initially. In the case

of stationary installations, third countries exerted early opposition after the EU passed a provision that foresaw the mere possibility of introducing BCAs in the future.

Similarly, the initial policy outcomes in the two California cases were markedly different, with policy-makers having adopted a BCA in the electricity sector but none for industrial facilities. This is due to differences in stakeholder attitudes, which shifted depending on the availability of alternative measures. In the electricity case, a strong coalition of policy-makers and NGOs was able to overcome opposition from utilities at first. In the case of industrial facilities, overwhelming opposition combined with limited demand for BCAs meant that there was never any meaningful support for BCAs. This was due to a preference for free allocation to address the nexus of competitiveness concerns and carbon leakage. By contrast, no alternative measures were available to address emissions from imported electricity.

The case studies also offer opportunities for thought experiments. If, hypothetically, alternative measures, specifically free allocation, had not been available for stationary installations in the EU and industrial facilities in California, would policy-makers have adopted and implemented BCAs? In the EU case, fears of trade war and retaliation likely would still have prevented the adoption of BCAs for stationary installations, or at least thwarted efforts to implement them even if policy-makers would pass such measures into law initially. In California, the policy outcome would likely depend on the extent of domestic political opposition from industries with corporate structures and supply chains that extend beyond the state. As long as such opposition proves to be prohibitive, policy-makers would not adopt BCAs for industrial facilities. In both jurisdictions, however, the question remains if concerns about circumvention would emerge during any implementation and derail policy-makers' efforts after all. The answer to this question depends on the ease with which market participants would be able to circumvent any such BCAs.

Another potential question relates to the barrier of opposition from other governments. If, hypothetically, EU policy-makers and stakeholders were not concerned about trade war and retaliation, for instance if the EU economy was more import-oriented and thus not as vulnerable to retaliation, would policy-makers have adopted and implemented BCAs? It remains unclear whether the BCA in the aviation case would have been implemented under

such circumstances. However, BCAs for stationary installations would likely still not have been adopted due to stakeholders' preference for free allocation.

Other insights relate to legal concerns. The fact that BCAs may be designed to be WTO- and DCC-compliant appears to be of little relevance as long as policy-makers continue to be reluctant to rely on their legal rights due to stakeholders' preference for free allocation, fears of repercussions for governmental relations, domestic political opposition, or practical concerns about the circumvention of BCAs. Ultimately, policy-makers gave considerations other than law more weight in designing their domestic climate policies, particularly political considerations.

In fact, policy-makers both in the EU and California were found to be well aware of the legal literature on BCAs and their compliance with WTO law and, for policy-makers in California, the US DCC. What is more, policy-makers were confident in their ability to design BCAs in compliance with the applicable legal regimes. In the end, the adoption and implementation of BCAs failed for reasons not found in traditional legal scholarship. This demonstrates the need for legal scholarship to engage in interdisciplinary research to help understand practitioners' policy choices and effectively inform policy-making.

Another insight concerns the trade flows targeted by BCAs. In all case studies, the political discourse on BCAs focused almost exclusively on imports, with BCAs on exports mostly absent from the discussions. In the two cases in which BCAs were adopted (EU aviation, California electricity), BCAs on exports were not included in these measures.⁴⁵ Several factors explain this observation: stakeholders that supported BCAs represented predominantly import-oriented sectors (e.g. California's cement industry, which experienced significant imports but hardly any exports); some practitioners lacked familiarity with or even misunderstood the concept of BCAs on exports; policy-makers focused on protecting domestic producers rather than those producing abroad, even if they are owned by domestic

⁴⁵ Note that in the EU aviation case, the BCA covered both incoming and outgoing flights, which resembles a BCA on imports. The equivalent of a BCA on (i.e. rebate for) exports in this case would be exempting outgoing flights from the measure's coverage.

companies; policy-makers considered rebating exports environmentally perverse if those exports were not subject to carbon pricing abroad.

Furthermore, in none of the case studies policy-makers or stakeholders sought to leverage the potential benefit of BCAs to incentivize other jurisdictions to take climate action.⁴⁶ Instead, policy-makers and stakeholders either focused on addressing the nexus of competitiveness concerns and carbon leakage or sought to increase the coverage of carbon pricing by extending its scope, and thus environmental reach, beyond the domestic domain.

Lastly, BCAs were adopted only in those cases in which policy-makers sought to extend a policy's scope beyond the domestic domain (EU aviation, California electricity). Nevertheless, no BCA effectively endured in any of the case studies. Policy-makers either opted not to adopt BCAs in the first place (EU stationary installations, California industrial facilities), or they adopted BCAs but subsequently weakened (California electricity) or suspended (EU aviation) these measures during their implementation.

7.8 Conclusion

In theory, BCAs offer the promise of economic, environmental, and political benefits.⁴⁷ In practice, however, there are several reasons why practitioners oppose BCAs. Using four case studies this dissertation has empirically identified a number of barriers that prevented the adoption and implementation of BCAs in practice.

The evidence shows that policy-makers are likely to meet domestic political opposition to BCAs, may run into opposition from other governments, and may encounter concerns about the circumvention of BCAs. In fact, domestic industry stakeholders overwhelmingly oppose BCAs since they prefer alternative measures, such as free allocation of emission allowances. They also oppose because BCAs may result in a stakeholder's increased exposure to carbon pricing, and export-oriented industries fear trade war and retaliation from

⁴⁶ For details on this potential benefit of BCAs, see section 2.2.4, above.

⁴⁷ See part 2.2, above.

other jurisdictions. In the cases examined, these barriers have outweighed the potential benefits of BCAs.

At the same time, this research has shown that several other potential concerns frequently found in the literature did not prevent the adoption and implementation of BCAs in these case studies. This applies to legal concerns about WTO law and the US DCC, and practical concerns about the administrative complexity of BCAs for basic industrial products. However, some opponents of BCAs appeared to have alleged such concerns to reinforce their opposition, despite evidence and expert assertions to the contrary. Furthermore, policy-makers appear to show limited concerns about hampering international climate efforts, which thus seem to present only a minor barrier to BCAs, if any.

Although the extant theory predicts that practitioners would embrace BCAs because of their potential benefits, the evidence shows that this is not necessarily the case. Industry stakeholders overwhelmingly oppose BCAs, and NGOs support BCAs only where environmental concerns are in the foreground but oppose these measures where the focus is to address competitiveness concerns. Therefore, policy-makers are likely to meet domestic political opposition to BCAs.

Based on these findings, the best chances of success at implementing a BCA are found where the following circumstances coincide:

- Alternative measures, such as free allocation, are not available. In particular, this concerns cases in which policy-makers wish to increase the coverage of their domestic policy by imposing a carbon price on emissions associated with imports – in other words, to extend a policy’s scope, and thus its environmental reach, beyond the domestic domain – which free allocation cannot achieve.
- The economy seeking to adopt the BCA is import-oriented, thus limiting its vulnerability to retaliation from other jurisdictions.
- There is a limited presence of domestic industry stakeholders that would experience an increase in their exposure to carbon pricing under the BCA and have corporate structures and supply chains that extend beyond the jurisdiction.
- The possibilities for circumventing the BCA are limited, for instance due to the availability of accurate data on emissions from imports.

These are the conditions under which policy-makers are most likely to adopt and implement BCAs. Given these significant constraints, the scope for applying BCAs in practice appears to be more narrow than acknowledged in the literature. This insight aligns with the observation that BCAs are largely absent in practice despite their potential benefits.

In view of the research results, the following recommendations are offered to policy-makers who are considering the development of BCAs to help inform their decision-making:

- Apply BCAs to extend the scope of carbon pricing, and thus its environmental reach, beyond the domestic domain. When used for this purpose – as opposed to for addressing the nexus of competitiveness concerns and carbon leakage, which can be achieved with alternative measures – the viability of BCAs is strengthened. Also, NGOs are likely supportive if this motivation underpins efforts to put BCAs in place.
- Assess market participants' ability to circumvent BCAs and carefully evaluate the feasibility of successfully countering such efforts. The availability of accurate data on emissions from imports is likely to help limit opportunities for circumvention.
- Evaluate the likelihood of political opposition from other jurisdictions in response to BCAs and contemplate whether government would be willing, and able, to withstand retaliatory measures from opposing governments in a bid to uphold a BCA.
- Survey domestic stakeholder opinion and secure the broadest possible political support. Industry stakeholders most likely to support BCAs are import-oriented and have corporate structures and industrial supply chains that do not extend beyond the jurisdiction.
- Challenge false claims that designing BCAs in compliance with WTO law or the DCC would not be possible, or that the administrative complexity of implementing BCAs for basic industrial products would be prohibitive.

The following remarks address the study's limitations and suggest areas for further research. First, research that draws on qualitative data from interviews must recognize and be explicit about the possibility that research participants may be influenced by vested interests. In order to guard against the risk that such influences skew the research results, the interviews were carried out and evaluated critically and with this awareness in mind. Additionally, wherever possible, the evidence drawn on for this study was corroborated

through multiple sources and documentary materials. These safeguards minimized the risk that vested interests influenced the research results.

Second, all case studies investigated concern the carbon-pricing instrument of cap-and-trade. Because experiences with BCAs have been limited to cap-and-trade systems to date, no carbon taxes were studied explicitly. While there are no obvious indications that the hypotheses investigated would play out fundamentally differently in a carbon tax regime,⁴⁸ the case study selection arguably limits the relevance of the study's findings for carbon taxes. Investigating a BCA in combination with a carbon tax would be helpful to clarify the applicability of the research findings for carbon taxes.

Third, in addition to two typical BCAs, this study also drew on experiences with two non-traditional BCAs. Assessing further experiences with BCAs as commonly envisioned could provide additional analytical leverage to better understand the adoption and implementation of BCAs in practice.

Fourth, based on case studies in two jurisdictions, this research was able to draw conclusions regarding concerns about repercussions for governmental relations, namely through opposition from other governments that sparked fears of trade war and retaliation or of hampering international climate efforts. Investigating jurisdictions other than the European Union and California could help verify the findings relating to BCAs' possible impact on governmental relations.

Another area for further research concerns the risk of circumventing BCAs. Given that the extent to which market participants can circumvent a BCA may only become evident during the implementation of such a measure, investigating additional cases in which BCAs have been adopted could help further assess the risk of circumvention. Because this dissertation has examined case studies in which BCAs were adopted for the electricity and aviation sectors, a case in which a BCA was adopted for manufacturing industries would be particularly illuminating to corroborate the findings regarding the risk of circumvention.

⁴⁸ Regarding the alternative measure of free allocation, note that also carbon taxes offer an equivalent alternative to BCAs. Under a carbon tax, policy-makers may allocate output-based credits to compliance entities, which is equivalent to free allocation in a cap-and-trade system.

Case studies of BCAs are challenging to come by. It appears difficult to find cases in which BCAs have been the subject of serious consideration and deliberation among policy-makers and stakeholders, let alone cases in which BCAs have been adopted or, even less likely, successfully implemented. Ultimately, even BCAs that have been adopted at first but ultimately fail during implementation are unable to unfold their intended effects. As one policy-maker put it: “In the end, you don’t do well unless you can implement. Otherwise, a policy is just a piece of paper. (...) It has to be implemented, it has to be enforced, and if there is no willingness to [do so], then don’t bother – don’t bother making the paper.”⁴⁹

At the same time, should policy-makers from a pioneering jurisdiction one day be able to successfully implement a BCA to complement a domestic carbon-pricing policy, the environmental impact of that BCA may go well beyond the emissions reductions from the measure alone if others follow the example and replicate the policy elsewhere. An interviewee from California declared: “Even for as large a jurisdiction as California is, our ultimate impact on global climate change [mitigation] will be measured not by how many tons [of emissions] we reduced but by our leadership and whether we can actually provide an example for others to follow.”⁵⁰ Similarly, hypothetically envisaging the successful implementation of a BCA in California, another interviewee opined: “That would be an enormous gift to the world because – if history is any guide – if [California] does this, everyone will just copy it. Everyone else could just turn on their Xerox machine and photocopy.”⁵¹

Nevertheless, for reasons explored in this dissertation, success in implementing BCAs has proven elusive to date. By studying some of the few experiences with BCA development, this dissertation has explained why these measures are absent in policy-making practice. As the evidence presented has shown, the circumstances in which BCAs may be implemented successfully, and thus the scope for applying BCAs in practice, appear to be more narrow than acknowledged in the literature.

⁴⁹ Interview of European Commission official E (26 October 2015).

⁵⁰ Interview of a representative of the environmental community (16 November 2017).

⁵¹ Interview of Michael Wara, Professor of Law, Stanford University (31 October 2017).

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