Governing Carbon at the Border: The Turbulence of Implementing the EU's Carbon Border Adjustment Mechanism

A Comparative Study of the Aluminium and Steel Sectors in Norway and Sweden

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Abstract

The EUs Carbon Border Adjustment Mechanism (CBAM) is aimed at preventing carbon leakage and strengthening the EUs Emissions Trading System. Yet its introduction and rollout has been controversial. This thesis uses the concept of 'turbulence' (Ansell & Trondal 2018) to investigate how CBAM has been received and contested in Norway and Sweden, and how their different relationships to the EU shape these dynamics. Through a comparative case study of the aluminium sector in Norway and the steel sector in Sweden, the thesis draws on document analysis and 11 elite interviews with policymakers and industry actors. The thesis explores different dimensions of turbulence and finds that turbulence from CBAM is shaped as much by domestic engagement as by EU design, with technical complexity, newly introduced administrative responsibilities, and tight implementation schedule placing pressure on both administrative systems and industrial planning. Sweden's more proactive approach helped ease coordination challenges, even as disruption remained. In Norway, a slower and more fragmented response made early adaptation difficult, reflecting not only its non-member position but also limited political prioritisation and weaker coordination between authorities and the industrial sector. The thesis argues that turbulence is not a sign of failure, but a defining feature of climate governance when policy is advanced unfinished, and national actors respond without building the coordination or ownership needed to carry it.

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Chapter 1: Introduction

1.1 CBAM and the Terrain of EU Climate Governance

The Carbon Border Adjustment Mechanism (CBAM) aims to resolve one of the central contradictions in European climate policy. As carbon prices rise within the EU, the risk increases that production will shift to jurisdictions with weaker climate regulation (European Commission 2021a) CBAM responds to this by applying an equivalent carbon cost to imported goods in emissions-intensive sectors, beginning with aluminium, steel, fertilisers, electricity, and cement (European Commission 2023). In doing so, it restructures how climate responsibility is calculated and enforced across borders. The mechanism requires importers to report embedded emissions, follow EU-calibrated verification rules, and purchase carbon certificates that reflect the EU ETS price. These requirements are being introduced in stages, beginning with a transitional phase from 2023 to 2025, followed by full implementation in 2026. Yet their long-term effect is already clear: CBAM transforms the EU Emissions Trading System from a domestic tool into a regulatory instrument with cross-border reach (European Commission). It redraws the boundary between internal market protection and global climate obligation, while placing complex demands on national authorities and third-country producers alike (Mehling et al. 2019).

CBAM did not emerge in isolation. It reflects a broader transformation of EU climate governance that began with the European Green Deal in December 2019 (European Commission 2019). The Green Deal marked a turning point by placing climate goals at the centre of the EU's economic, industrial, and trade policy. Its instruments are binding, increasingly technical, and oriented toward system-wide transitions. These changes raise new expectations not only for what states must achieve, but for how they must organise to deliver it. The shift is visible in the expansion of climate instruments like the ETS, the taxonomy regulation, and CBAM, all of which involve detailed reporting, delegated enforcement, and legal conditionality. For actors outside the EU, these instruments create obligations that extend beyond formal borders (Lee-Makiyama 2021).

Several scholars have traced how recent climate reforms have shifted the balance of authority within the EU. Rosamond and Dupont (2025) argue that the Green Deal reinforces central control by giving EU institutions a stronger role in setting climate policy priorities and enforcing them across sectors and member states. This affects both the substance of policy

and the processes through which it is made. Earlier work by Oberthür and Roche Kelly (2008) characterised the EU as a global climate leader, but the expansion of binding rules since 2019 has changed how that leadership is exercised. Rules that once relied on coordination are now enforced through legislation, with limited opportunities for adjustment by national actors. This has raised concerns about how much room there is for meaningful participation in shaping policies that apply across the single market. Schreurs (2022) points out that as instruments become more technical and interdependent, consensus among states becomes harder to maintain. The result is a governance model that places heavier demands on institutions without always providing the flexibility or capacity needed to meet them.

These tensions are especially visible in the governance of energy- and trade-intensive sectors. Claeys et al. (2019) argue that high-level climate targets mean little without the institutional conditions to carry them through at the sectoral level. Köhl et al. (2021) describe Fit for 55 as a double-edged sword for heavy industry, which faces strict compliance obligations without clear or credible transition safeguards. The (Dechezleprêtre et al. 2025) adds that these pressures may create regional labour risks, especially in countries with limited social protections. CBAM enters into this landscape. It adds new demands on sectors already facing structural reform and growing international exposure. For the EU to achieve its climate goals, it cannot afford to lose the industrial sectors it is trying to decarbonise.

Taken together, these developments signal a deeper shift in how climate policy is made and managed in Europe. As climate ambition increases, regulation becomes denser, more technical, and harder to adjust. Climate and industrial policy are now interlinked, and both are delivered through instruments that demand coordination across public administration, market actors, and territorial levels. This raises the stakes not only for how policies are designed, but for how they are absorbed and carried out in practice. CBAM makes these pressures visible. It concentrates the legal, political, and administrative tensions of the Green Deal into a single instrument.

1.2 CBAM as a Disruptive Instrument

CBAM introduces a new layer of regulation into a policy space that was not originally designed to handle it. By requiring carbon data at the point of import, it extends climate policy into trade administration and border control. This repositions institutions that were

previously peripheral to climate governance. Customs officials must now identify CBAM goods, verify emissions declarations, and oversee compliance through digital tracking systems. Environmental agencies must evaluate production methods that occur outside the EU. Economic ministries must mediate between domestic industries and EU-level procedures. These responsibilities do not follow existing administrative lines. Instead, they cut across them, linking actors who do not typically work together and forcing governments to translate EU policy into domestic practice under tight deadlines and with little margin for error. The policy aims to safeguard climate ambition by preventing leakage, but it does so by layering complex requirements onto already stretched systems (European Commission 2023a; Mehling et al. 2019). CBAM does not simply raise expectations. It changes what institutions are for.

In response to early confusion, the European Commission introduced the Omnibus Regulation, a broader legislative package designed to streamline and align rules across climate instruments. While not exclusive to CBAM, it addresses several practical concerns raised during the transitional phase. One key clarification was how many producers must report emissions and under what conditions which is an issue that had created significant uncertainty for both importers and national authorities (European Commission 2025f). The Omnibus regulation marks a partial response to these structural pressures, but not a full resolution.

Four design features in particular illustrate how CBAM generates turbulence at the European level. The first is the phase-out of free allowances under the ETS[1]. For over a decade, sectors like aluminium and steel have received emissions permits at no cost to preserve competitiveness and avoid relocation. CBAM replaces this approach with a border pricing model, but the transition is steep. Firms that invested under the assumption of continued

[1] Phasing out free emissions allowances is a core condition for the legal and environmental integrity of CBAM. As long as EU producers receive free allowances under the ETS, applying a carbon price to imports through CBAM risks breaching WTO non-discrimination rules, which require equal treatment of domestic and foreign goods. The removal of free allowances also strengthens the carbon price signal and supports the EU's climate ambition by making all producers, domestic and foreign, accountable for the full cost of their emissions. However, this shift creates significant adjustment pressure. Industries that have relied on free allowances to remain competitive now face rising compliance costs, especially in sectors exposed to international trade. Without equivalent carbon pricing in export markets, EU producers may struggle to compete abroad, raising concerns about carbon leakage and the loss of market share. This creates political and economic tension within the single market, particularly in sectors with uneven decarbonisation pathways or limited access to green technologies (Mehling et al. 2019, 450).

protection now face a sharp increase in compliance costs, while authorities must manage the shift without prior experience or established routines for implementing such a system (Sgaravatti 2024). The second source of disruption is the exclusion of indirect emissions, especially electricity-related emissions, from the initial CBAM scope. For producers that rely on clean energy inputs, such as Norwegian aluminium and Swedish steel manufacturers, the mechanism fails to account for major differences in carbon intensity. This weakens the environmental accuracy of the policy and has led to concerns that it distorts competitive conditions (ERT 2024, 58). The third issue is the so-called scrap loophole for the aluminium sector. Under current rules, goods made from recycled materials are exempt from CBAM charges, regardless of the emissions produced during recycling. Aluminium actors warn that this creates a backdoor for high-emission production and undermines decarbonisation incentives for primary producers (Assous et al. 2024; Hydro 2023b). A fourth concern is the absence of any export adjustment mechanism. As free allowances are phased out, EU-based producers must absorb the full carbon cost even when exporting to markets without equivalent climate rules. Swedish steel industry representatives, have argued that this exposes European producers to competitive disadvantages abroad and increases the risk of carbon leakage (Jernkontoret 2022). These policy produce governance consequences, as states must clarify, justify, and sometimes defend aspects of a mechanism that remains contested even within Europe's own industry market.

1.3 Turbulence as Analytical Lens and Relevance

The previous section showed that CBAM is not simply a matter of technical implementation. Each of its key design features has triggered confusion, contestation, or resistance, and often in sectors and agencies that were not previously central to EU climate governance. The mechanism requires coordination between actors with different mandates, timelines, and capacities, while offering limited room to adapt or renegotiate its terms. It produces friction where responsibilities are unclear and where rules emerge faster than the systems expected to implement them. These disruptions signal a deeper governance condition in which the pace, scope, and layering of climate policy increasingly collide with the realities of administrative capacity. This thesis uses Ansell and Trondal's (2018) "turbulence" theory to examine that condition and to trace how CBAM generates turbulence across the actors responsible for interpreting, applying, and responding to the policy in practice.

Ansell and Trondal's turbulence theory defines turbulence as a situation marked by instability and unpredictability, where different pressures, events, and sources of support interact in ways that are difficult to anticipate or control (2018). It focuses on the uncertainty and disruption that appear when new instruments reassign roles, compress timelines, or cut across established procedures. Climate policy often fits the description of turbulence because it is driven by urgent timelines and high-stakes targets. Emissions must fall sharply within the next decade, and states are expected to reorganise energy systems, restructure industrial production, and reshape trade flows to get there. These demands enter sectors that are already politically sensitive and economically exposed. The pace is fast, the margins for error are narrow, and the space for national adjustment is limited.

To understand how this pressure emerges, Ansell and Trondal outline three types of turbulence: turbulent environments, turbulent organizations, and turbulence of scale. These point to different sources of disruption (2018). While the theory offers these categories as useful entry points, this thesis takes a different approach. It builds on the idea of turbulence as a condition shaped by interdependence and movement. In CBAM implementation, these sources are often blurred. External demands trigger internal tensions, and EU-level rules create ripple effects at the national level. This thesis therefore focuses not on the origin of turbulence, but on how it unfolds across the implementation process.

To do so, it draws on another part of Ansell and Trondal's framework: the dimensions of turbulence. These dimensions offer a more concrete structure for identifying how and where turbulence materialises. **Shifting parameters** refer to the reconfiguration of governance roles, rules, or expectations during a policy's life cycle. In turbulent settings, the direction or substance of policy may evolve rapidly, forcing actors to adapt midstream without clear procedural guidelines. This concept is particularly useful in analysing complex implementation environments where rule clarity and role stability cannot be assumed. **Intercurrence** captures situations where multiple governance logics or procedural systems operate simultaneously, often in tension. It allows scholars to trace how actors navigate competing obligations. Finally, **temporal complexity** highlights the challenges that arise when institutions must respond to compressed or asynchronous timelines and where policy is made on one schedule and implemented on another, or where short-term adaptation clashes with long-term planning.

Turbulence has already been identified in the rollout of EU climate instruments. Dupont and Torney (2021) show how the COVID-19 pandemic accelerated climate policy timelines and exposed weak coordination between institutions. Leiren and Farstad (2024) find that the Fit for 55 package created turbulence across systems expected to deliver rapid decarbonisation. Their findings show how turbulence becomes more visible when governments are asked to implement climate policy made elsewhere, under timelines and procedures they did not shape.

This thesis builds on that insight. It applies the turbulence lens to CBAM, a single regulatory instrument introduced under the European Green Deal. While existing studies have focused on turbulence at the level of major policy packages or multi-level systems, this study brings the concept into the detail of one policy. It examines how turbulence appears within CBAM's implementation process, where rules are translated into responsibilities and carried by institutions that differ in their access to decision-making and their role in shaping the policy. This thesis shows how turbulence theory can be applied at a micro level, by tracing how one policy interacts with the actors responsible for interpreting, delivering, and responding to it.

1.4 Research Question and Comparative Scope

This thesis asks:

> ***How does CBAM generate turbulence in Norway and Sweden, and to what extent is this shaped by their differing relationships to the EU?***

This thesis examines how CBAM generates turbulence as it moves into national systems. It focuses on how the policy is received, interpreted, and acted upon in Norway and Sweden, with particular attention to the pressures it creates for public authorities and industrial actors. The aim is to identify where disruption emerges, how it manifests across administrative and sectoral settings, and what this reveals about the capacity of national systems to absorb EU climate regulation. By focusing on CBAM, the thesis takes a single instrument and uses it to trace how turbulence is experienced from the inside, through rules that must be applied, responsibilities that must be reassigned, and expectations that must be managed across multiple levels of governance.

The second part of the research question asks how Norway and Sweden's different relationships to the EU shape the way turbulence unfolds. This matters because earlier studies have shown that alignment with EU climate law can itself produce disruption. Leiren and Farstad (2024) found that implementing the Fit for 55 package generated significant turbulence in Norway, precisely because it had to absorb far-reaching rules without participating in their design. Their study suggested that turbulence was more pronounced in Norway than in the UK, despite the UK's weaker formal ties to the EU. This raises a broader question: how does a highly aligned non-member state compare to a full member when facing the same climate instrument? Sweden and Norway offer a sharp contrast. Sweden operates within EU policymaking institutions. Norway is expected to implement many of the same rules, but with limited voice or access during the design phase[2]. At the same time, both countries are among the most administratively and politically equipped to handle policy change. They are wealthy, democratic, and administratively strong. If CBAM produces turbulence here, it becomes less likely that these effects are due to weak capacity or lack of climate ambition. It suggests something deeper in the way the policy travels across different actors, and different forms of EU affiliation.

By examining how CBAM is implemented in two high-capacity states under different political conditions, the thesis offers new insight into how climate policy creates turbulence. It shifts attention away from abstract policy design and towards the actors responsible for making it work. The study is original in applying turbulence theory to a single EU instrument in a comparative setting, and in doing so across the boundary of EU membership. Its findings speak to ongoing debates about EU membership, administrative resilience, and the limits of climate integration. As the EU moves forward with increasingly far-reaching climate legislation, understanding how policies like CBAM are absorbed in practice by both member and non-member states will be critical. This thesis contributes to that understanding.

[2] While CBAM is not formally considered EEA-relevant, meaning that Norway, Iceland, and Liechtenstein were not legally obligated to adopt it, the mechanism's direct link to the EU Emissions Trading System created strong alignment pressures. These countries participate in the EU ETS through the EEA Agreement, and CBAM's structure builds directly on ETS pricing and reporting systems. Failure to follow suit would have risked exposing domestic industries to both administrative fragmentation and competitive disadvantage. As a result, all countries have moved toward implementation in coordination with the EU, despite the absence of formal input during the policy's design phase (Regjeringen 2022)(European Comission 2023)(Argus Media 2025).

1.5 Framework Overview

The analysis in this thesis is guided by Ansell and Trondal's theory of governance turbulence. This lens is useful for understanding CBAM because the mechanism places demands across multiple policy domains without necessarily resolving how they connect. Turbulence theory helps identify where those pressures settle, how they are experienced, and what they reveal about the limits of existing administrative systems, including how government bodies, regulatory agencies, and industrial actors interpret and respond to shifting demands and uncertainty.

The thesis uses the same three dimensions of turbulence applied by Leiren and Farstad (2024), adapted from Ansell and Trondal's framework. These dimensions help unpack how policy pressure materialises across different parts of the implementation process. **Shifting parameters** refer to reconfigurations in roles, mandates, or expectations that emerge when new instruments alter how governance responsibilities are distributed or interpreted. This can unsettle established routines or create uncertainty about who is responsible for what. **Intercurrence** describes points of friction where otherwise separate systems, governing principles, or administrative routines begin to interact in unexpected ways. These overlaps can produce tension across administrative levels, policy and industry sectors. **Temporal complexity** concerns the pressure created by unstable or compressed timelines, especially when delivery must happen faster than coordination or adaptation allows. Together, these dimensions provide a structured way to trace how turbulence unfolds in CBAM implementation and how it is experienced across administrative, industrial, and political settings. These three dimensions guide the structure of the analysis and form the basis for three hypotheses. Each hypothesis addresses how one type of turbulence emerges under CBAM.

A fourth hypothesis extends the framework to compare how turbulence is shaped by Norway and Sweden's different political relationships to the EU. The expectation is that turbulence will appear differently in a non-member state that implements CBAM through the EEA, compared to a full member that participates in the policy design process. This comparative angle allows the thesis to test whether EU membership reduces or redirects turbulence, and whether political inclusion matters once climate regulation enters national systems.

The analysis draws on two types of qualitative data: document analysis and semi-structured elite interviews. The document sample includes national implementation reports, consultation responses, administrative guidance, and public statements from industry actors. These texts show how CBAM has been communicated, interpreted, and contested within each country. The interviews add depth to this picture. They include perspectives from government officials, industry representatives, and experts involved in or observing CBAM implementation. Interviews were conducted using a semi-structured format and coded thematically to capture where actors locate friction, where they experience and anticipate turbulence, and how they respond to uncertainty.

The thesis is organised as follows. **Chapter 2** reviews the relevant literature on governance turbulence, CBAM, the roles of Norway and Sweden in European climate governance, and the position of heavy industry in climate policy.. It identifies a gap in how turbulence has been applied to specific instruments and highlights the need for grounded, comparative analysis. **Chapter 3** outlines the methodological approach, including research design, case selection, and the use of document analysis and interviews. **Chapter 4** presents the empirical analysis. It is structured around the three turbulence dimensions: shifting parameters, intercurrence, and temporal complexity. As well as the fourth hypothesis, which examines how different forms of EU affiliation shape the experience of turbulence. **Chapter 5** brings together the findings to reflect on broader patterns across the two cases. It shows how different actors experienced CBAM, where pressure accumulated, and what this reveals about how the policy is working in practice. **Chapter 6** concludes the thesis by summarising the main findings and outlining implications for future research and climate policy implementation.

Chapter 2: Literature Review

2.1 Governing Through Turbulence

What is Turbulence: Origins and Key Features?

The concept of turbulence describes situations where governance systems face unstable and shifting demands that cannot be managed through standard procedures or institutional routines. Ansell and Trondal (2018) define turbulence as a condition in which events, pressures, and sources of support interact in unpredictable and inconsistent ways. It differs from both routine governance and short-term crisis. Turbulence is prolonged, multidirectional, and difficult to contain. This makes it a useful framework for analysing the implementation of climate instruments like CBAM, where rules arrive quickly, responsibilities are unclear, and coordination is expected across disconnected parts of the system.

Building on this foundation, Ansell, Sørensen, and Torfing's extension of the concept to public administration, argues that turbulent governance environments require more than reactive adaptation. Instead, institutions must engage in robust retooling and rethink organisational processes and legitimacy claims rather than simply adjusting inputs and outputs (2023). Their account aligns with the multi-level demands created by CBAM, which forces national and sectoral actors to navigate technical, procedural, and political uncertainty simultaneously.

Still, the literature remains conceptually open. Clavin (2022) and Maull (2011) present turbulence, as a structural condition of global politics, where interconnected systems produce overlapping shocks. While this global lens helps capture the cumulative nature of instability, it risks overlooking frictions that arise when national systems are tasked with translating supranational rules, as seen in the EU and EEA frameworks.

This flexibility is both a strength and weakness. Turbulence allows scholars to examine policies through procedural instability, rather than viewing it solely through the lens of rules and administrative routines, yet it can risk overextension. Even Ansell and Trondal (2018, 45) acknowledge that turbulence, as a generic analytical concept, presents challenges. They note that the factors producing turbulence are highly context-specific, and that building a general theory around such variable and situational dynamics is inherently difficult. What one

organisation experiences as turbulence may not register the same way elsewhere. Given the elasticity of the concept, this thesis approaches turbulence with caution. While turbulence can be a useful tool for analysing uncertainty and disruption in governance, it requires a clear definition to be meaningful in practice.

Climate Governance Under Pressure

Climate governance scholarship has increasingly used the concept of turbulence to describe mounting pressures on governance systems, including political contestation, regulatory overload, and challenges to coordination. Leiren and Farstad (2024) examine turbulence in a European climate context, showing how the Green Deal creates governance friction for non-member states like Norway. While their work offers a useful starting point, it treats turbulence mainly as a broad outcome of accelerated policy change. It says little about how specific instruments like CBAM generate turbulence in particular sectors, leaving key implementation dynamics under-theorised. Moreover, Leiren and Farstad's focus on non-EU countries such as Norway and the UK leaves open important questions about how turbulence manifests within EU member states. Their analysis overlooks EU members, such as Sweden, where mechanisms such as CBAM generate institutional and political strain despite full legislative participation. In doing so, the study risks overstating the insider–outsider divide and underestimating how turbulence cuts across institutional boundaries.

A similar ambiguity can be found across the wider turbulence literature, where the concept is frequently invoked as a general condition of contemporary governance rather than as a targeted analytical tool. Galaz (2022), for instance, describes global climate governance as suffering from 'regime overload,' where growing policy complexity and urgency outpace the ability of governing systems to respond effectively. Dupont and Torney (2021) frame the Covid-19 pandemic as a critical juncture that exposed and exacerbated underlying governance weaknesses in EU climate policy. While such accounts emphasise the intensity and scale of current pressures, they risk rendering turbulence too expansive, a catch-all for crisis, complexity, or constraint. This raises a conceptual challenge: should turbulence be understood as a constant backdrop to climate governance, or as something that materialises under particular structural pressures and policy configurations?

These questions take on added urgency when applied to instruments like CBAM, which display many of the features typically associated with turbulence: compressed implementation timelines, dense technical demands, and overlapping regulatory responsibilities across jurisdictions. While the literature has yet to examine CBAM explicitly, similar dynamics have been observed within the EU's own climate governance. Christou (2021) and Siddi (2021) point to mounting frictions between political ambition and administrative capacity, especially in the context of energy and climate target setting. However, these contributions largely centre on intra-EU tensions and assume a degree of alignment and coordination within governance systems. They provide limited insight into how turbulence unfolds across different contexts, both within member states like Sweden and among non-member states like Norway, where varying forms of integration and political positioning shape the experience of regulatory disruption.

This thesis contributes by shifting the lens. Rather than treating turbulence as a vague backdrop, it examines how CBAM makes turbulence visible through specific disruptions. These include uncertainty in reporting procedures, unclear lines of administrative responsibility, coordination breakdowns between policy sectors, and legitimacy concerns among industries expected to comply.

Comparing and Contrasting: Adaptive, Anticipatory and Crisis Governance

A range of theoretical frameworks have shaped how scholars conceptualise governance under strain. Adaptive governance, as outlined by Brunner and Lynch (2013, 2017), Bronen and Chapin (2013), and Craig et al. (2017), emphasise decentralised authority, feedback learning, and organisational resilience in response to environmental uncertainty. Anticipatory governance, advanced by Camacho (2009), Guston (2014), and Poli (2017), instead focuses on foresight: building the capacity to manage slow-burning or long-horizon problems before they erupt. Meanwhile, crisis governance (e.g. Boin et al. 2017; LaPorte 2007; Maloy 2024) studies high-intensity shocks that destabilise governance systems and demand rapid coordination.

Each of these literatures has enriched our understanding of climate governance. Adaptive governance highlights the importance of flexibility and bottom-up coordination, while anticipatory governance helps explain the infrastructural challenges of foresight in

decarbonisation policy. Crisis governance has clarified how external events, such as pandemics or geopolitical shocks, recalibrate governments' priorities. However, these models also share an important baseline: they presume some form of symmetry between policy designers and implementers. The underlying relationships tend to assume authority and agency are distributed in relatively coherent ways.

This assumption breaks down in cases like Norway, where complex regulatory instruments such as CBAM are adopted without political co-authorship. The turbulence framework developed by Ansell and Trondal offers a needed correction. By focusing on gaps between regulatory reach, institutional roles, and the ability to absorb change, turbulence theory highlights the friction that arises when uneven systems are pushed to keep pace with fast-moving policies. It does not displace other governance theories, but complements them by addressing cases where national actors are expected to implement rules they had no role in shaping.

Ansell and Trondal's Turbulence framework therefore provides a timely and underutilised lens for understanding how CBAM unsettles climate policy implementation beyond the EU core. Rather than viewing CBAM as a straightforward administrative task, this perspective highlights its potential to create pressure on governance systems, trigger disputes over roles and procedures, and raise concerns about the credibility and fairness of the mechanism. Turbulence theory, by contrast, begins from the premise that governance systems may be asked to absorb policy change under conditions of asymmetry, fragmentation, or misalignment between actors, structures, and decision-making processes

2.2 Introduction to CBAM and Industry Impact

The Carbon Border Adjustment Mechanism (CBAM) has triggered an expansive body of literature engaging with its function in European and global climate governance. CBAM is designed to address the persistent issue of carbon leakage (EU Commission 2023?). While greenhouse gas emissions have declined in the EU in recent years, scholars remain divided on whether this reflects genuine decarbonisation or simply a geographic shift in emissions. Wang and Kuusi (2024) show that trade flows in emissions-intensive sectors respond to EU carbon pricing, raising concerns about structural relocation. Teusch et al. (2024) further demonstrate that high domestic carbon prices correlate with rising carbon intensity in trade,

implying that reductions in domestic emissions may be partially offset by increases elsewhere. Together, these findings underscore the need for border-adjustment mechanisms that reduce emissions globally, rather than merely displacing them geographically.

At the normative level, CBAM has been interpreted as an extension of the EU's longstanding preference for technocratic climate governance. Dryzek (2022) argues that instruments like CBAM emerge from an ecological modernisation logic, in which environmental problems are viewed as technical challenges solvable through innovation, expertise, and bureaucratic design. In this framing, CBAM is less a political compromise than a rational mechanism for internalising externalities via administrative control. Other scholars have drawn on broader governance theory to situate CBAM within a deeper pattern of EU rule export. Rather than relying on treaty-based alignment, the EU uses instruments like CBAM to externalise its rules through economic leverage. Together, these contributions highlight that CBAM's legitimacy is not universally accepted: its strength lies in institutional design, but this very design is part of what provokes normative resistance especially among those with limited input into its formation.

This dual character as both a climate instrument and a tool of regulatory influence has attracted sustained critique. A substantial body of literature questions whether CBAM functions primarily as an environmental mechanism or whether it veils green protectionism under the guise of climate responsibility. Cosbey et al. (2019) warn that while the mechanism is defensible in principle, its design must avoid veering into covert trade barriers. They highlight legal risks under the World Trade Organization (WTO), along with the political risks of undermining trust in international climate cooperation. Okereke (2010) introduces a justice-oriented critique, arguing that climate governance instruments such as CBAM risk entrenching global inequality if they fail to account for differential capacity and responsibility across countries. This concern is echoed in the empirical policy modelling of Perdana and Vielle (2022), who argue that without compensatory mechanisms, CBAM could place disproportionate burdens on least developed countries. Their findings underline the importance of equity considerations in both the design and reception of the mechanism.

As a result, much of the early CBAM literature has focused on its external consequences. This includes analyses of its implications for third countries, trade partners, and vulnerable

economies with weak administrative capacity. Beaufils et al. (2023), for instance, model sectoral disruption under different CBAM designs and find substantial effects on non-EU exporters. Similarly, the OECD (2025) has evaluated CBAM's likely consequences for supply chains, flagging risks of economic exclusion for developing countries. These contributions are critical to understanding how CBAM interacts with the global trade system, but they leave open important questions about its operation within the EU itself.

Specifically, the literature has not yet fully examined how CBAM is being absorbed by European producers and industries already regulated under the ETS. The assumption appears to be that CBAM will either offer protection or extend existing compliance frameworks. However, early evidence suggests that many firms face considerable uncertainty regarding how the mechanism will impact reporting, investment, and competitiveness. Studies by Dechezleprêtre et al. (2025) show that sectors such as aluminium and steel are among the most exposed to CBAM-related adjustment costs. These industries operate in highly globalised markets, rely on established cross-border supply chains, and often depend on long-term investment cycles. Yet the academic literature has done little to assess how these pressures are being managed or interpreted at the firm and sector level.

Even fewer studies have explored how EU alignment shapes the experience of CBAM. This remains a significant omission, particularly given that the mechanism is legally rooted in EU legislation and applies beyond EU borders. While the literature on CBAM's effects in developing countries is growing, far less attention to how structurally embedded European states navigate its demands. This includes full EU member states such as Sweden, which participate directly in policymaking, and affiliated countries like Norway, Iceland, and Liechtenstein, which are bound to implement EU climate rules through the EEA but lack formal legislative input. Switzerland and the United Kingdom represent further variants of external alignment. Although these institutional positions differ, they all raise important questions about how CBAM is absorbed under different governance conditions. For instance, Norway is Europe's largest aluminium producer, while Sweden's steel sector is among the most exposed to the mechanism. Understanding how each country adapts to CBAM provides insight into the regulatory challenges and legitimacy tensions that can emerge not just at the EU's margins, but also from within its core.

The literature has yet to explore how this kind of integration affects the perception and implementation of CBAM within European industry. Most studies treat regulatory variation as a Global North versus Global South dynamic, overlooking the differences that exist within Europe itself. This thesis addresses that gap by focusing on actors subject to EU carbon pricing instruments. It shifts attention away from CBAM's external impacts and toward its uneven implementation across different national governance settings. In doing so, it helps illuminate the under-explored dynamics of compliance, legitimacy, and regulatory turbulence within the extended perimeter of EU climate policy.

2.3 Norway's Non-EU Status and Governance Challenges

Situating Norway's Unique Position in EU Climate Governance

Norway occupies an uneasy position in the architecture of European climate governance. It is not an EU member state, yet it is deeply integrated into the bloc's regulatory framework through the EEA Agreement. This has led Norway to adopt some of the EU's most ambitious climate instruments, including the ETS since 2008, the Effort Sharing Regulation (ESR), and the Land Use, Land-Use Change, and Forestry (LULUCF) framework (Farstad et al. 2024, 3). More recently, it has committed to implementing significant parts of the "Fit for 55" package, even though it had no formal role in shaping the legislation.

This paradox of deep integration without formal representation is not new, but it is becoming harder to manage. Much of the literature on compliance and legitimacy rests on a binary logic: states either enter fully into supranational authority or retain sovereign autonomy (Moravcsik 1998) (Tallberg 2002) (Franck 1990). Norway disrupts this frame. As Farstad et al. (2024, 3–4) show, alignment with EU climate law occurs not through legal obligation but under conditions of functional necessity and reputational constraint.

Fossum (2019a) introduces the idea of Norway as a "rule-taker without vote," a framing that captures the formal asymmetry at the heart of its EEA participation. Norway is legally bound by EU climate legislation but remains politically excluded from shaping it. Finstad (2018) corroborates this legal-institutional constraint, arguing that Norway's EEA obligations leave little room for autonomous adaptation. Yet this position has not gone uncontested. Fossum and Graver (2018), while echoing the formal imbalance, suggest that Norway's continued alignment reflects a pragmatic trade-off, access to the single market in exchange for political

restraint. In contrast, Hillion (2011) expresses greater concern, suggesting that Norway's "outsider" position within EU governance risks hollowing out democratic legitimacy altogether.

These concerns are sharpened when placed in historical context. Scholars such as Egeberg and Trondal (1999), Kux and Sverdrup (2000), and Marthe Narud and Strøm (2000) have traced the EEA's evolution as a mechanism of "differentiated integration." While often portrayed as a stable compromise, their accounts diverge on the nature and durability of this arrangement. Kux and Sverdrup (2000) are more optimistic, seeing the EEA as a flexible vehicle for policy diffusion. Archer (2004), however, warns that this model lacks long-term political viability, especially in areas such as climate and energy where EU policy has grown increasingly dynamic and sovereignty-sensitive. This concern is echoed in the Eldring Report (NOU 2024), which shows how Norway's EEA-based integration into the EU climate space often produces delayed or incomplete domestic implementation, particularly when politically sensitive instruments like CBAM emerge without prior national involvement.

This tension is visible in debates around the so-called "Norway Model." Fossum (2019b) characterises this model as a mode of affiliation defined by legal alignment and political marginality. While effective in ensuring regulatory coherence, it comes at a cost: democratic disengagement. Fossum and Graver (2018) acknowledge the functionality of the model but warn that it may become unsustainable under high-stakes policy developments such as CBAM, which impose economic consequences without granting Norway a formal say in decision-making. Østerud (2005) takes a stronger line, arguing that Norway's semi-detached integration represents a deep constitutional ambiguity, one that erodes the normative legitimacy of externalised EU governance.

Political and Administrative Adaptation: How Does Norway Navigate Rule-Taking?

The literature on Norway's ability to translate EU climate legislation into national policy reflects a mix of confidence in its administrative machinery and concern about structural misalignment. Scholars broadly acknowledge Norway's high compliance rate with EU directives, yet diverge on whether this reflects genuine alignment or pragmatic adaptation under constraint.

Jevnaker (2016) and Martinsen (2015) highlight the strength of Norwegian bureaucratic capacity in transposing complex EU directives. They argue that the civil service has developed stable administrative practices that enable effective adaptation despite lacking formal legislative influence. This capacity is further supported by Sverdrup (2014), who emphasises the administrative continuity and legal professionalism underpinning Norway's EEA alignment. However, Skjærseth and Rosendal (2023) introduce a more critical perspective. Their recent analysis of renewable energy directive implementation shows that compliance is not always seamless. They point to friction when EU rules confront domestic political priorities or sectoral interests, suggesting that transposition is more contested than earlier literature assumed.

This tension raises broader questions about Norway's adaptive capacity. Gullberg (2011) describes the Norwegian state as technocratically robust but politically fragile. She argues that implementation often depends on expert consensus and informal coordination rather than parliamentary debate. This view is echoed by Boasson and Lahn (2016), who stress the limited politicisation of climate adaptation in Norway. While this may facilitate administrative efficiency, it also constrains broader democratic engagement. Haugevik (2017) adds that political and administrative separation from EU processes can become a liability when Norway's climate actions are scrutinised for credibility, particularly in high-profile areas like the energy transition, where being seen as aligned with international standards is key to maintaining legitimacy.

Some scholars argue that Norway compensates for its exclusion from EU decision-making through informal diplomacy and bilateral channels. Boasson and Lahn (2016) and Haugevik (2017) both document how Norwegian actors maintain dialogue with Brussels, using technocratic networks and regulatory harmonisation to influence outcomes from the outside. Yet this form of access remains precarious. It relies on goodwill rather than institutional rights, and is highly sensitive to shifts in EU priorities. Taken together, this literature reveals both the strengths and limitations of Norway's adaptive strategy. While administrative resilience allows for rule uptake, the absence of formal influence continues to shape the conditions under which that adaptation occurs.

Academic assessments of Norway's climate ambition diverge sharply. While some frame Norway as a policy leader in global climate governance, others argue that this leadership is more rhetorical than substantive, shaped by structural dependency on the EU. The debate is not about whether Norway has taken visible action on climate, but whether that ambition stems from independent policy choices or a need to adjust to EU decisions.

Boasson (2013) presents Norway as a front-runner in climate governance, highlighting its early adoption of carbon taxes, proactive engagement in international negotiations, and consistent investment in climate research. Boasson and Lahn (2016) extend this framing, describing Norway as a 'cognitive leader' that contributes normatively to climate debates even when its formal influence is limited. Their work suggests that leadership can be discursive rather than based on decision-making power, and that Norway has leveraged this role strategically.

However, this account is contested. Neumann (2003) argues that Norway's climate engagement has often served to legitimise its broader economic interests, particularly in the energy sector. In his reading, claims to leadership mask an underlying reluctance to cede material advantage. Farstad (2020) adds that elite consensus around climate action in Norway has limited democratic deliberation, producing a narrow version of ambition that is vulnerable to shifts in political and economic pressure. Thorhallsson (2015) introduces a more structural critique, arguing that Norway's status as a small, non-member state means its leadership claims are inherently dependent on EU direction. In this view, leadership becomes less a matter of initiative and more a function of rule-following framed as ambition. Eckersley (2016) helps clarify the underlying tension. She argues that Norway pairs a strong international climate reputation with limited influence over EU rule-making, a duality that becomes harder to sustain as EU climate governance grows more prescriptive. The literature here reflects a live debate, with implications for how CBAM is likely to be received: as an extension of self-imposed ambition or an externally imposed constraint.

<u>External Pressures, Vulnerabilities, and Structural Dependence in Climate-Energy Strategy</u>

Norway's climate and energy strategy is not only shaped by its non-member alignment with the EU, but by structural dependence on EU markets and the externalisation of regulatory authority. Despite administrative capacity and resource wealth, Norway remains exposed to

policy decisions made elsewhere. This vulnerability is particularly visible in the energy sector, where EU decarbonisation targets and market reforms increasingly constrain national autonomy. As highlighted by Lindberg et al (2025), these developments do not occur in isolation. They intersect with geopolitical instability and uneven climate ambition globally, amplifying the strategic tension at the core of Norway's hybrid governance model.

Austvik (2019) explores this contradiction through the lens of energy security and economic sovereignty. He shows that Norway's climate commitments must be balanced against the economic centrality of oil and gas exports, much of which are destined for the EU. While EU decarbonisation creates long-term strategic pressure to diversify, it also exposes Norway to short-term regulatory volatility. Jevnaker, Lunde, and Skjærseth (2015) reinforce this by showing how EU energy directives have become increasingly prescriptive, limiting Norway's space to define transition pathways on its own terms.

This exposure to shifting EU rules is compounded by Norway's inability to shape them. As Finstad (2018) explains, Norway is legally bound to adopt EU legislation through the EEA framework, but lacks formal influence over its development. This structural exclusion raises concerns about compliance burdens and competitiveness risks, especially as mechanisms like CBAM are introduced without Norwegian input. Boasson and Lahn (2016) point to a growing sense of fragility as the density and scope of EU regulation increase. Leiren and Farstad (2024) bring this into conceptual focus by linking Norway's experience to the framework of governance turbulence. They argue that regulatory systems developed outside national political structures create friction and complicate the ability of domestic actors to respond effectively. In this context, CBAM is not just a policy challenge, it is a structural stress test for Norway's hybrid model of climate governance.

Democracy Legitimacy, Outsidership and Contestation

Norway's position as an outsider in EU climate governance has triggered sustained concern about democratic legitimacy. While the EEA model allows legal alignment without full membership, it also produces a gap between obligation and representation that becomes more visible as EU climate policy intensifies.

Fossum (2019a) frames this condition as a structural democratic deficit. He argues that Norway's alignment with EU rules increasingly lacks domestic deliberative legitimacy, particularly in policy areas with distributive consequences. Rieker (2017) adds that the legitimacy of external governance mechanisms depends not only on procedural fairness but also on their capacity to withstand political contestation. As climate policy becomes more binding and less consultative, the risk of legitimacy erosion grows.

This debate intersects with broader literature on Norway's outsider identity. Østerud (2005) notes that Norway's refusal to join the EU has long rested on the belief that sovereignty and democracy are better preserved outside supranational structures. Yet this belief becomes harder to sustain as regulatory entanglement deepens. Neumann (2003) and Thorhallsson (2015) both suggest that Norway's continued rejection of EU membership creates an increasingly contradictory political identity which simultaneously rejects and internalises EU governance.

CBAM intensifies these contradictions. As a highly visible and politically sensitive climate policy, it demands compliance from actors with no say in its design. This reinforces the critique that the EEA model is becoming less a compromise and more an imposition. The literature signals that the democratic costs of rule-taking are not abstract. They are embedded in real policy tensions, which mechanisms like CBAM make harder to ignore. While Norway has developed strong administrative routines to absorb EU climate legislation, its outsider status leaves it more exposed to policy shocks that originate elsewhere.

The limits of rule-taking become especially visible when compared to full EU members. The following section examines the case of Sweden, where legislative participation enables a different mode of adaptation.

2.4 Sweden's Role as a Model Member: Between Alignment and Complexity

Sweden is often portrayed in the literature as a model EU member state, characterised by high levels of EU alignment, legal compliance, and early adoption of European climate instruments. Its reputation as a climate frontrunner stems not only from its policy ambition but also from its embeddedness within EU legislative processes, where it participates fully in shaping and implementing regulations such as the CBAM.

Scholars such as Johansson (2022) describe Sweden as a loyal and constructive EU member, noting that it has historically supported deeper integration when this aligns with national interests. Yet this alignment is framed less as enthusiastic federalism and more as strategic engagement. Miles (2019a, 2019b) similarly argues that Sweden's Europeanisation has followed a pragmatic fusion model, where domestic political elites embed European law and norms into national structures while maintaining some distance from core EU identity politics. This helps explain why Sweden's implementation of EU climate instruments has appeared both stable and domestically uncontroversial.

In climate and energy governance specifically, Sweden is consistently identified as a frontrunner. Lindberg and Wettestad (2024) find that Sweden has played a leading role in implementing Fit for 55 and related EU climate legislation. The OECD (2025) likewise highlights Sweden's administrative capacity, noting its efficiency in adopting and operationalising new climate rules. These accounts are echoed in more CBAM-specific research. Bravo Gallegos et al. (2022), drawing on interviews with Swedish stakeholders, find that Swedish policymakers view CBAM as a natural extension of existing EU climate policy which is technically complex, but politically coherent.

However, Sweden's EU membership status does not mean its experience of CBAM implementation is free from tension. Malmborg (2024) warns that elite-driven governance can obscure democratic contestation and reduce transparency, particularly in highly technical fields such as carbon regulation. Johansson (2022) similarly notes that while political elites have championed EU integration, public support remains conditional and may shift in response to economic or sovereignty concerns. These critiques complicate the image of Sweden as a straightforward model of stability. They suggest that while Sweden benefits from full participation in EU policymaking, formal inclusion does not eliminate domestic political friction but instead reshapes how it emerges compared to states outside the EU's decision-making structures.

Normative and Discursive Climate Leadership

Sweden's role as a normative climate leader has been widely acknowledged in the literature. Its political elites often frame environmental leadership as central to Sweden's international

identity, blending moral responsibility with economic modernisation. This reputation informs how Sweden approaches EU instruments such as CBAM. However, the literature also reveals tensions beneath this narrative, which are useful for understanding the limitations of EU membership as a stabilising force in climate governance, particularly in contrast to Norway's structurally constrained position.

Zannakis (2015) explores how Sweden's climate discourse has merged ethical leadership with competitiveness, promoting a policy model in which emissions reduction is both a moral imperative and a driver of green innovation. In this framework, Sweden positions itself as a country that acts ahead of others to "go further" in decarbonisation, reinforcing its legitimacy as a climate frontrunner. Bäckstrand (2025) expands on this by showing how Sweden's European Green Deal implementation has benefited from broad party consensus and stable administrative and political structures. CBAM, when situated within this discursive context, is viewed not as a disruption but as an affirmation of Sweden's existing approach to climate governance. As Bravo Gallegos et al. (2022) observe, Swedish policy actors largely perceive CBAM as aligned with the country's long-term policy goals and international image.

Yet this leadership is not without contradictions. Widerberg et al. (2024) offer a more critical reading, arguing that Sweden's role in global climate governance often overstates its actual impact. They describe the country's international climate orchestration efforts as a "cautionary tale," where symbolic leadership masks limited domestic follow-through. Similarly, Malmborg (2024) critiques the technocratic style of Swedish climate policymaking, warning that it can alienate the public and conceal conflict under the appearance of political unity. These critiques challenge the assumption that discursive leadership translates smoothly into implementation, even for countries at the core of EU policymaking.

Importantly, this literature complicates the comparative contrast with Norway. While Sweden benefits from EU membership, its domestic politics and discursive practices introduce their own forms of tension. Norway may experience turbulence through asymmetrical governance and rule-taking, but Sweden's model shows that formal participation does not always ensure policy legitimacy or political coherence. This invites a more layered comparison: Sweden's internal complexity does not undermine its value as a comparator but instead strengthens the

contrast by showing that both insider and outsider positions face challenges, albeit of different kinds.

Recent electoral developments have further complicated Sweden's status as a climate frontrunner. Although historically framed as a model for normative climate leadership, the growing political influence of the Sweden Democrats, an anti-immigration, nationalist party sceptical of ambitious climate action, has introduced new uncertainties. As Vihma, Reischl, and Andersen (2021) document, the Sweden Democrats have consistently framed climate policies as elitist projects disconnected from popular interests, positioning themselves against costly decarbonisation measures. Their pivotal support for Sweden's centre-right government following the 2022 elections has shifted the political climate, resulting in the rollback of certain national climate targets and a softening of Sweden's previously assertive EU climate stance (Forbes 2025). While Sweden remains formally committed to EU objectives like CBAM, its internal political dynamics increasingly constrain the depth and speed of domestic climate ambition. These developments reveal that even full EU membership does not immunise national climate governance from populist backlash and highlight how domestic political realignments can reshape the absorption and contestation of EU climate instruments.

Public Contestation and Implementation Tensions

Despite Sweden's longstanding reputation for climate policy coherence, recent political developments and existing scholarly critiques reveal that domestic contestation increasingly shapes the reception, prioritisation, and execution of EU climate measures. Bäckstrand (2025) highlights the recent Sweden Democrat election dilemma, and notes that while political elites present a unified front on climate action, growing populist resistance and electoral volatility challenge this consensus. Kihlstedt (2022) similarly finds that public understanding of climate policy is often shallow, with significant gaps between belief and behavioural change. Together, these accounts reflect underlying tensions that continue to shape the political environment in which EU climate governance is received in Sweden.

These tensions are not necessarily disruptive to policy implementation, yet they complicate the assumption that EU membership guarantees smooth alignment. OECD (2025) highlights Sweden's persistent difficulties in meeting climate targets in transport and land use, attributing them to overlapping responsibilities between agencies and to disparities in

resources and expertise across municipalities. This suggests that alignment on paper does not ensure effectiveness in practice. Collier and Löfstedt (1997) add that subnational variation in policy engagement, particularly between urban and rural municipalities, undermines the coherence often attributed to Sweden's climate governance. These findings challenge the literature's tendency to treat EU member states as internally unified actors, and call for closer attention to how national implementation is shaped by domestic administrative, political, and territorial asymmetries.

While full EU membership provides regulatory voice and formal alignment, domestic frictions and shifting political dynamics continue to shape the implementation of climate policy and may be visible in instruments like CBAM. Sweden's case illustrates that EU membership may not eliminate turbulence but rather reconfigures how and where it manifests. Crucially, these dynamics are unlikely to unfold abstractly; they will rather materialise through the specific vulnerabilities, infrastructures, and economic roles of carbon-intensive sectors such as aluminium and steel. The next section turns to the literature on heavy industry to assess how these sectoral systems absorb and interpret regulatory disruption.

2.5 Heavy Industry and Climate Governance

Scholarly debate over how heavy industry navigates decarbonisation highlights a core tension between what is technically achievable and the political-economic systems that limit those possibilities. The aluminium and steel sectors are widely recognised as both essential and hard to decarbonise. Yet the literature remains divided on whether being subject to stricter climate regulations has pushed these sectors toward faster transition or created new obstacles by exposing them to rising costs and competitive pressures.

Dechezleprêtre and Sato (2017) challenge the orthodox assumption that environmental regulation undermines industrial competitiveness, finding limited evidence for the pollution haven hypothesis, which posits that firms relocate to countries with weaker environmental standards. Their work reframes carbon pricing not as a threat to industry survival, but as a manageable economic signal. Yet this perspective has faced criticism for glossing over sectoral nuance, particularly in basic materials production, where capital intensity and trade exposure limit flexibility. Johansson et al. (2018) take a more sector-specific approach,

arguing that standard climate policy instruments often overlook embedded emissions and the long-term structural constraints of energy-intensive production. Their analysis underscores a central puzzle in the literature: whether heavy industries are laggards because of unwillingness or because they operate within economic and technological systems that make rapid transformation difficult?

Aluminium is often seen as a test case for these dynamics. Pedneault et al. (2021) show that decarbonisation in this sector hinges not just on emissions reduction but on mitigating long-term technological and market uncertainties. Similarly, Zore (2024) highlights that deep decarbonisation requires transformations across energy systems, logistics, and input markets, rather than simply cleaner production processes. These studies point to the limitations of regulatory instruments that focus narrowly on emissions accounting without engaging with broader infrastructural dependencies.

Emerging contributions also call for more attention to place-based dynamics. Devine-Wright (2022) argues that decarbonisation literature has often treated industry as a homogeneous category, overlooking how spatial context, institutional arrangements, and local politics shape transition pathways. This is especially relevant to a thesis comparing Norway and Sweden, where national industrial legacies and geographic conditions deeply influence decarbonisation options. Yet the place-sensitive turn remains underdeveloped in mainstream CBAM discussions, which still tend to model adjustment burdens at a generalised or national level.

Across these contributions, a core debate remains unresolved: to what extent do aluminium and steel firms respond to policy incentives, and to what extent are their options limited by the structure of the sectors themselves? Some scholars argue that clear and credible regulation can steer change, while others highlight the challenges posed by sector size, capital intensity, and exposure to global competition. For this thesis, the question is not whether CBAM is well-designed on paper, but how sectoral characteristics shape its effects in practice. Aluminium and steel are not only emissions-intensive; they are also closely tied to national economies and governance systems, making them useful cases for observing how climate policy plays out under real-world constraints.

Sectoral Adjustment and the Disruption of Carbon Regulation Logics

A growing strand of literature has examined how heavy industry, particularly aluminium and steel, has adapted to the regulatory framework of the EU ETS. Johansson et al. (2018) argue that energy-intensive sectors gradually adjusted to the ETS by aligning compliance strategies with predictable policy instruments, including free allowances and carbon pricing benchmarks. Gupta et al. (2021) offer firm-level evidence from German manufacturing, showing that companies adapted their behaviour to the ETS not simply because carbon prices increased, but because the regulatory environment remained predictable and easy to navigate.

This accumulated regulatory familiarity is now being challenged. CBAM restructures the compliance framework by phasing out free allowances and introducing border-level carbon obligations. Thran (2023) highlights how this shift reconfigures trade-emissions dynamics in the aluminium sector, displacing established ETS-based cost structures and exposing exporters to new pricing risks. Rather than supplementing the ETS, CBAM introduces a parallel mechanism that is procedurally distinct and more administratively complex. The literature has yet to fully theorise this transformation, but early contributions suggest that CBAM may break the compliance logic firms have internalised over the past decade.

Industry-facing publications reinforce this point. Sejersted et al. (2025) and Hydro (2023) both underscore concerns that CBAM's "flattened" approach to emissions pricing penalises low-carbon producers alongside high-carbon competitors. While these concerns are often framed as implementation grievances, they point to a deeper friction: the disjuncture between historical adaptation to ETS norms and the new, more fragmented regulatory expectations CBAM creates.

Scholarly discussions of CBAM have primarily focused on distributive or geopolitical dimensions (e.g., Das & Bandyopadhyay 2025; Zhao et al. 2024), with less attention to the domestic compliance cultures that CBAM unsettles. In this sense, the literature has not yet adequately engaged with how regulatory continuity is disrupted or how industries experience that disruption. Sectoral adjustment under CBAM therefore constitutes a crucial but underdeveloped frontier where past adaptation to ETS norms collides with the new administrative demands and unfamiliar governance structures introduced by CBAM.

Aluminium in Norway

The Norwegian aluminium sector has long stood at the intersection of industrial policy, climate ambition, and international trade. The sector is often framed as a frontrunner in low-carbon innovation; however, the academic literature paints a complex picture that questions the relationship between strategic state support and genuine decarbonisation leadership.

Early contributions on the Norwegian aluminium sector provide important context for understanding the structural dynamics that shape its current approach to decarbonisation. Lindquist (2001) analyses the internal restructuring of Norsk Hydro, a major industrial firm with strong historical ties to the Norwegian state and the country's dominant aluminium producer. Her work shows how Hydro responded to rising global competition in the 1980s by reorganising its operations and adapting corporate strategy to protect its market position. These changes reflected a capacity to adjust to economic pressure, but they were not driven by environmental concerns. Sæther et al. (2011) build on this by describing the aluminium sector as part of a broader co-evolutionary system, where innovation is shaped by long-term collaboration between firms, policymakers, and research institutions. In their view, the sector's ability to evolve has depended on stable relationships and negotiated change, not disruptive shifts. Moors (2006) adds a comparative perspective, showing that although Hydro has integrated some environmental improvements over time, its production model remains tied to capital-intensive technologies that limit more radical transformation. Together, these studies question the notion that Norway's aluminium sector is a climate leader by intent. They suggest instead that its low-carbon profile has emerged from a tradition of adaptive industrial strategy shaped by market conditions and state coordination, rather than from a deliberate push for decarbonisation.

Recent literature on aluminium in Norway is increasingly focused on the sector's engagement with CBAM. Ask (2025) and Hydro (2023) both criticise the mechanism's current structure, arguing that it disadvantages producers in Norway despite their low-carbon credentials. The central concern is that imported aluminium made from remelted scrap can bypass carbon pricing, while Norwegian producers remain fully exposed to EU ETS costs. These interventions reveal a sector that is not only adapting to external regulation but actively working to shape it. They also reflect a broader pattern: environmental leadership is pursued when it aligns with industrial stability, but challenged when it threatens market share. In this

sense, CBAM becomes a test case for how far the aluminium sector's climate ambition extends when competitiveness is at stake. These dynamics mirror tensions seen across other emissions-intensive sectors and point to the need for heavier scrutiny of how decarbonisation pathways are framed, negotiated, and contested within heavy industry.

Steel in Sweden

The literature on Sweden's steel sector, like Norway's aluminium sector, often presents it as a frontrunner in the green industrial transition. Danovska (2022) supports this framing to some extent, showing how the Swedish steel company Svenskt Stål AB (SSAB) has positioned itself as a leader in decarbonisation through its role in the HYBRIT initiative. This high-profile project promotes fossil-free steel production and has been widely praised in policy and media circles. However, Danovska also identifies underlying tensions. SSAB's decarbonisation narrative is built on strong claims of technological progress, but her analysis reveals that it leaves little room for internal critique or alternative views. The company's communications frame green steel as an inevitable success story rather than a contested process shaped by risk and uncertainty.

De Leeuw and Vogl (2024) take this critique further. They argue that the Swedish green steel transition is less a story of consistent industrial reform and more an example of "commodity hype". In their view, political and industry actors have constructed a vision of Sweden as a climate leader through promotional discourse, selective framing, and a focus on flagship technologies. This narrative sidelines questions about infrastructure, long-term cost, and the labour needed to manage real industrial transformation. Their findings challenge the widespread idea that Sweden offers a coherent model for climate-industrial policy. They suggest that green steel in Sweden functions as a symbolic asset in the country's broader climate image, rather than a fully embedded practice across the sector.

Recent contributions have begun to address how Sweden's steel sector fits into the regulatory demands introduced by the EU's Carbon Border Adjustment Mechanism (CBAM). Islam (2025) highlights the institutional and administrative gaps that continue to shape Europe's green industrial landscape. They point to widespread uncertainty around emissions accounting, limited capacity for implementation, and a lack of coordination across national systems. These issues are especially relevant in Sweden, where political commitment to green

steel is strong, but where reporting infrastructure and compliance systems are still under development. Eurometal (2023) provides an industry view that complements these concerns. It outlines Sweden's high-level ambitions for low-carbon steel but also notes weak enforcement mechanisms, unclear emissions tracking standards, and the risk of fragmentation across firms. Smaller producers are particularly vulnerable, as they often lack the capacity to meet complex CBAM reporting requirements.

The literature increasingly questions the stability of Sweden's position in the green steel transition. Earlier work raised concerns about how political and corporate actors construct the narrative of Swedish climate leadership. More recent research shows that implementation remains uneven, and that regulatory demands such as those introduced by CBAM are revealing gaps that previously received little attention. Islam (2025) and Eurometal (2023) both show that symbolic leadership does not ensure readiness. Their findings indicate that Sweden's steel sector continues to rely on flagship projects and broad political support, but lacks the organisational capacity and long-term coordination needed to ensure full alignment with EU climate instruments. This body of literature points to a deeper tension: sectors celebrated as green frontrunners may still struggle to adapt when policies become concrete, technical, and mandatory. The Swedish case shows how ambition can outpace capacity, and why close attention to how governance structures are designed is essential for understanding how industrial decarbonisation unfolds in practice.

Literature Gaps and Research Positioning

Research on industrial decarbonisation has expanded, but many studies still overlook how new climate policies change how sectors function. While there is detailed work on emissions and technology, there is less on what happens when firms and governments are asked to follow new rules that demand different reporting, coordination, and decision-making practices.

This gap is clear in the case of CBAM. While studies have examined how aluminium and steel sectors adapted to the EU ETS, few assess how they respond when rules change. CBAM brings new reporting demands and shifts how carbon costs are applied. Most existing work focuses on emissions or targets, not how sectors handle policy changes. In the Nordic context, Norway and Sweden are often compared on ambition, but less is said about how

their industries deal with EU measures like CBAM. This thesis addresses that by comparing how aluminium and steel actors engage with the mechanism and what that shows about limits to change.

The turbulence framework offers tools for analysing how sectors are affected when established rules are replaced or restructured. Yet few studies apply it to major climate instruments like CBAM. This thesis takes up that task by examining how aluminium and steel actors in Norway and Sweden respond to CBAM's demands. Their reactions offer insight into the political and administrative tensions that arise when climate regulation cuts across existing sector arrangements. The next section presents the hypotheses that guide this analysis.

2.6 Hypotheses

The following hypotheses serve as analytical guides for assessing how CBAM generates turbulence in Norway and Sweden. The first three derive from Ansell and Trondal's turbulence framework: shifting parameters, intercurrence, and temporal complexity. The fourth adds a structural hypothesis that turbulence may be more severe in Norway due to its status as a non-EU-member with limited influence over EU climate legislation.

Hypothesis 1: Shifting Parameters

Shifting parameters refer to reconfigurations in roles, mandates, or expectations when new policy instruments alter how governance responsibilities are allocated or understood. Turbulence arises when previously stable assumptions no longer apply. Leiren and Farstad (2024) apply this to the European Green Deal, showing how regulatory change can unsettle administrative routines, particularly in systems not built for anticipatory coordination.

This expectation is supported by broader studies on administrative adaptation under EU climate policy. Jevnaker (2016) and Martinsen (2015) show that governance systems often perform well under stable conditions, but struggle to absorb complex regulatory changes without prior alignment or anticipatory mechanisms. Leiren and Farstad (2024) similarly note that regulatory layering under the Green Deal can disrupt established practices, particularly when administrative systems are not designed to absorb sudden shifts in coordination logic.

CBAM can therefore be expected to trigger turbulence in both Norway and Sweden by unsettling familiar routines and introducing new governance expectations that exceed existing procedural norms. This hypothesis focuses on how administrative actors interpret and respond to these changes in practice.

> *H1: CBAM produces turbulence through shifting parameters by reconfiguring expectations, responsibilities, and administrative roles in ways that unsettle established routines.*

Hypothesis 2: Intercurrence

The concept of intercurrence refers to friction that arises when previously stable policy domains are reconfigured or layered in unexpected ways. In this case, CBAM is layered onto an existing EU ETS structure that had fostered predictable patterns of industrial support and climate compliance. While the ETS relied on mechanisms such as free allowances and long-term emissions ceilings, CBAM introduces a fundamentally different logic of market exposure and border-based regulation. This reconfiguration alters the relationship between the state and heavy industry, particularly in sectors like aluminium and steel.

This expectation is grounded in recent literature. Johansson et al. (2018) and Dechezleprêtre et al. (2025) show how industrial actors shaped their decarbonisation strategies around the continuity of the ETS, often under the assumption that regulatory protection would persist. Pedneault et al. (2021) and Zore (2024) argue that CBAM departs from these logics by placing greater compliance responsibility on firms without resolving underlying system-level barriers to decarbonisation.

Therefore, it is expected that CBAM to generates turbulence by disrupting the regulatory continuity firms had come to rely on, forcing them to adapt to a more fragmented and uncertain compliance environment without adequate structural support.

> *H2: CBAM generates turbulence by layering new policy logics onto existing regulatory, trade, and industrial systems, producing friction across sectors and domains.*

Hypothesis 3: Temporal Complexity

Temporal complexity refers to situations where the pace of change outstrips the capacity of governance systems to keep up. CBAM is embedded in the wider Fit for 55 timeline and has introduced ambitious, short-term demands such as emissions reporting at the product level and the gradual phase-out of free allowances. These demands are unfolding in a compressed regulatory sequence and require rapid adaptation across both administrative and industrial sectors.

This pressure is well-documented in Norway, where limited legislative input reduces preparation time. Leiren and Farstad (2024) highlight coordination challenges under Fit for 55, while Fossum and Graver (2018) describe reactive adaptation as a structural feature of Norway's EU alignment. Yet similar concerns appear in Sweden. Islam (2025) identifies capacity gaps in implementing CBAM's technical demands, and OECD (2025) notes timing constraints and fragmentation in Sweden's climate governance.

This hypothesis will therefore support an exploration of how actors describe and navigate the timing pressures of CBAM implementation, including whether the policy is experienced as rushed, delayed, or fragmented.

> *H3: CBAM creates turbulence through temporal complexity, by introducing compressed implementation timelines, unclear sequencing, and conflicting temporal demands that outpace the adjustment capacity of national and industrial actors.*

Hypothesis 4: Norway Non-EU membership

Norway's position outside the EU may generate a distinct source of turbulence, as it has adopted CBAM without having any role in its design, and is unlikely to gain such influence in the future. While Norway was not legally required to implement CBAM, remaining in the EU ETS without doing so would have compromised the policy's internal coherence. In this sense, Norway's adoption was formally voluntary but, in practice, shaped by structural constraints. This externally driven alignment limits national discretion and could create turbulence by reducing policy ownership and constraining the ability to anticipate and prepare for implementation.

Leiren and Farstad (2024) argue that Norway experiences heightened turbulence because it is structurally obligated to implement EU climate policy while lacking upstream influence.

They find that turbulence in Norway under Fit for 55 was more severe than in the UK, despite the UK's looser ties to the EU, due to Norway's paradoxical tighter alignment to the EU combined with political exclusion from the policies' decision-making. Fossum (2019a) and Østerud (2005) further show how this rule-taker model generates long-term friction over democratic legitimacy, especially when regulatory instruments carry high political and economic stakes.

By comparing Norway with Sweden, a fully embedded member state with legislative voice, this thesis explores whether Norway's non-member status systematically amplifies turbulence, or whether other factors, such as administrative capacity or discursive alignment, play a stronger role. This hypothesis provides a structural lens to complement the three turbulence dimensions.

> *H4: CBAM generates more pronounced turbulence in Norway than in Sweden due to Norway's non-member status and limited formal influence over EU climate policy design.*

Synthesis and Link to Methods

These hypotheses provide a structured analytical framework for exploring how, and to what extent, CBAM generates turbulence in Norway and Sweden. The first three are each linked to a specific dimension of turbulence, whereas the last hypothesis introduces a broader claim that Norway experiences greater turbulence than Sweden due to its structural constraint as a non-EU member. Overall, these hypotheses reflect the challenges discussed in recent literature on EU climate policy, administrative adaptation, and industrial governance. The hypotheses serve as interpretive tools to trace where turbulence may be emerging, how it is perceived, and which conditions shape its intensity.

This inquiry focuses on the ways in which CBAM is received and navigated by a broad range of actors within both countries' climate and industrial governance landscape. Turbulence will be traced through discourse, administrative responses, and political and sectoral interpretation, using document analysis and semi-structured interviews. These include perspectives from both within and beyond the state, from public administration to organised interests, political representatives, journalists, and sectoral voices. The next chapter outlines how these hypotheses will be operationalised through data collection and analysis.

Chapter 3: Methodology

3.1 Research Design and Analytical Framework

This thesis investigates how Norway and Sweden experiences turbulence in its integration with CBAM. To study this, the thesis adopts a qualitative, comparative case study design. This choice is informed by a recognition that turbulence is not easily reducible to single variables or outcomes. Instead, turbulence is shaped by the specific context in which it occurs, including how actors interpret new rules, how systems are structured, and how external pressures unfold.. A qualitative design allows for in-depth exploration of these dynamics, while the comparative element helps reveal how differences in countries' alignment with EU policymaking affect both the emergence and handling of turbulence. Sweden and Norway offer a valuable contrast in this regard, not because of societal differences, but because they operate within distinct governance arrangements vis-à-vis the EU, despite sharing similar economic profiles and climate ambitions.

The analytical foundation of the study lies in turbulence theory, particularly as developed in public administration, adaptive governance, and studies of sectoral policy change. The turbulence framework is applied as a guiding tool for empirical inquiry that provides both a vocabulary and a conceptual structure for examining how actors respond to complex regulatory shifts such as CBAM, which blurs the boundaries between climate, trade, and industrial policy. Drawing on this literature, the study focuses on three specific dimensions of turbulence: shifting parameters, intercurrence, and temporal complexity, which form the basis for the thesis' analytical expectations and structure the operationalisation of turbulence in both data collection and analysis.

3.2 Case Selection: Norway and Sweden

This study applies its analytical framework through a comparative case design centred on Norway and Sweden. The two countries share key structural features but differ in their relationship to EU policymaking, offering a strategic contrast for assessing how governance turbulence takes shape under CBAM.

3.2.1 Comparative Design

The comparative design adopted in this thesis follows a most similar systems logic, a well-established approach in qualitative political science for examining how variation in one

institutional dimension interacts with shared structural features to produce different governance outcomes (Seawright and Gerring 2008, 297–298). Norway and Sweden are especially well-suited for this type of design. Both are high-capacity, export-oriented welfare states with long-standing commitments to climate leadership, described in earlier literature as climate policy frontrunners (Boasson and Lahn 2016; Lindberg and Wettestad 2024). They also exhibit structured coordination between government, industry, and expert communities in managing decarbonisation strategies. These parallels support the study's most similar systems design, while their differing relationships to the EU provide variation along a key explanatory dimension.

Though aluminium and steel are not the dominant export sectors in either country, both are strategically significant industries that are central to national decarbonisation debates and materially exposed to CBAM. They also share deep economic integration with the EU, operate mature carbon pricing regimes, and pursue industrial transformation agendas shaped by evolving European climate law. These commonalities establish a strong comparative baseline, enabling focused analysis of how different forms of embeddedness within the EU regulatory sphere shape governance responses under CBAM.

This design is also informed by Farstad and Leiren's (2024) study of turbulence in the implementation of the EU's Fit for 55 package. While their comparison focused on Norway and the United Kingdom, two non-EU countries formally affiliated with the EU in different ways, this thesis introduces a different layer by comparing an affiliated non-member (Norway) with a full EU member (Sweden). This allows for a more direct investigation of how proximity to EU policymaking, not just legal obligation, affects the experience and management of turbulence. Sweden's participation in EU decision-making offers procedural alignment with CBAM implementation, while Norway's non-member status and rule-taking position introduces asymmetries in timing, capacity, and policy adaptation. The comparison is therefore structured to illuminate how EU integration, when embedded within otherwise similar national contexts, shapes the conditions under which turbulence emerges, how it is interpreted, and how it is handled at the domestic level.

3.2.2 Norway

Norway serves as a particularly compelling case for investigating turbulence in the implementation of CBAM. Although CBAM is not formally part of the EU ETS directive and thus not legally binding under the EEA Agreement, Norway's participation in the ETS framework created strong political and practical pressures to align. In principle, Norway could have chosen to remain outside the CBAM system, avoiding formal implementation. However, this would have resulted in significant administrative burdens for Norwegian exporters, who would have had to continuously document and verify that a domestic carbon price equivalent to the EU level had been paid. Such a scenario would have been politically and logistically undesirable. This dynamic reveals the role of asymmetry facing Norway: it is compelled to implement intricate EU regulations like CBAM without having had formal decision-making power over them. The resulting gap between obligation and influence makes Norway an analytically rich setting for exploring turbulence in systems characterised by deep integration but limited participation.

Norway is also a critical case for sector-specific reasons, owing to the central role of aluminium in its industrial economy. As one of the largest producers in Europe, Norway's aluminium sector is highly exposed to CBAM due to its emissions profile, energy intensity, and strong orientation toward international markets. While the sector primarily relies on hydropower, it still generates considerable embedded emissions through process-related outputs and complex supply chains. Aluminium has long been central to Norwegian industrial policy, sustained by close cooperation between government and industry, and features prominently in debates over competitiveness, climate ambition, and economic restructuring. It is subject to overlapping regulatory regimes, including EU climate and industrial policies, national climate-industrial frameworks, and now the CBAM architecture. These intersecting pressures position the sector as a key site for analysing tensions between industrial legacy and low-carbon transition.

Among EEA-affiliated countries, Norway also stands out for its depth of integration with the EU ETS and its history of relatively ambitious climate policies. This combination of close integration with EU policy and a well-developed domestic climate apparatus makes Norway an ideal case for analysing how turbulence arises at the interface between external regulation and national implementation. Other EEA countries, such as Iceland or Liechtenstein, lack the

same sectoral relevance or administrative depth to CBAM, and are therefore less suited to the aims of this study.

3.2.3 Sweden

Sweden is included as a primary case alongside Norway to examine how CBAM generates turbulence across different settings. As a full EU member, Sweden is directly involved in the design of CBAM and benefits from alignment with its legislative and procedural frameworks. This allows the thesis to investigate whether turbulence arises from CBAM's inherent complexity and policy architecture, and whether it is also shaped by the tight EU relations. Both are small, high-capacity states with strong environmental reputations, long-standing engagement with emissions trading, and corporatist governance models marked by close coordination between government, industry, and expert communities. These features create relatively coherent policy environments and comparable administrative capacities, making them well-suited for assessing how turbulence emerges not from state weakness, but from differences in alignment with EU policymaking.

The Swedish steel sector offers a particularly valuable point of comparison to Norway's aluminium industry. It is carbon-intensive, globally integrated, and prominently situated within EU industrial decarbonisation efforts. Like Norwegian aluminium, it is among the first sectors to face transitional compliance under CBAM. These sectoral and governance conditions make Sweden a crucial case for exploring how turbulence is shaped not only by the demands of new policy instruments, but by the capacities and political frameworks through which they are absorbed. Other EU member states lack the same degree of comparability across both structural and sectoral dimensions, reinforcing Sweden's relevance to this study.

3.3 Data Collection Methods

This study relies on two primary sources of qualitative data: (1) document and content analysis, and (2) semi-structured elite interviews. These methods are designed to capture complementary dimensions of turbulence by combining the official narratives and policy framing found in documents with the lived perspectives of actors directly involved in CBAM implementation.

To further contextualise the research, I also attended two relevant meetings in 2025: a roundtable with Hydro at the Centre for International Climate Research Oslo (CICERO) and a stakeholder input meeting hosted by the Ministry of Climate and Environment and the Ministry of Trade and Industry on the Clean Industrial Deal. These events provided real-time access to policy dialogues and revealed how turbulence concerns are raised and negotiated among stakeholders.

3.3.1 Document Collection

Documents were collected to trace how CBAM was formally addressed, or left unaddressed, by national authorities, EU institutions, and sectoral actors during the early stages of implementation. The focus was on gathering material that could illustrate how responsibility was communicated, how procedures were introduced, and how regulatory expectations were conveyed across different levels of governance.

Given that many administrative routines were still in development, the aim was to collect a broad and comparative source base. This included strategy papers, white papers, ministerial statements, consultation submissions, technical guidance, and parliamentary references. It also covered commentary from industry organisations, position papers from major aluminium and steel producers, and relevant media coverage. EU sources such as the CBAM regulation, guidance documents, and explanatory memoranda were used to establish a common reference point for national alignment.

This range of material was important for capturing the circulation of CBAM across political, administrative, and sectoral domains, particularly in contexts where government communication was limited or delayed. Documents were reviewed in Norwegian, Swedish, and English, with translations used where necessary to ensure consistency across the two cases. A total of 276 documents were reviewed. Their details are listed in the tables in Appendices A, B, and C.

3.3.2 Elite Interviews

Elite interviews were conducted to examine how administrative and sectoral actors perceive and navigate the early-stage implementation of CBAM, as many of the processes, challenges, and responses that define the regulation are not yet fully visible in official documentation or legislation. Key dynamics, such as how governments interpret obligations, how industries prepare and coordinate for its new requirements often unfold behind the scenes in spaces that are informal, anticipatory, or experimental in nature.

Given these conditions, interviews are a necessary complement to document analysis. They provide access to perceptions, interpretations, and internal decision-making processes that are not yet reflected in policy texts or public statements. This is especially important when studying turbulence, which is not always formally declared or documented but often manifests through uncertainty, internal friction, or provisional decision-making. Interviews offer insight into how actors interpret shifting expectations, identify bottlenecks, and weigh competing pressures during a period of regulatory formation. In short, they provide a window into the interpretive and relational aspects of governance adaptation, which are central to understanding how turbulence is experienced in practice.

The sample included eleven interviews: six from Norway, four from Sweden, and one external EU climate policy-expert based Brussels. Respondents were selected for their proximity to CBAM implementation, either through direct responsibility, sectoral exposure, or policy coordination roles and were usually sourced through authorship of documents analysed. The aim was to capture insight from both government and industry actors across the two cases, rather than to achieve symmetry in numbers.

Norwegian interviews spanned government, industry associations, a journalist with policy expertise, and aluminium producers. Some addressed CBAM directly, while others offered broader perspectives on ETS reform and industrial decarbonisation. One respondent from the silicon sector, not yet covered by CBAM, contributed anticipatory insights relevant to later phases of implementation. In Sweden, all interviews were closely tied to CBAM, involving government officials, steel industry actors, and representatives from lobby organisations with direct engagement in the policy process. This reflected the state of CBAM implementation in Sweden during fieldwork, where engagement was already channelled through formal

procedures and the steel sector had become a key focus within the national climate-industrial agenda.

All interviews were conducted online via Microsoft Teams and transcribed in full to ensure consistency and accuracy in analysis. Respondents were recruited via purposive sampling, using professional affiliations and direct outreach based on institutional roles. Their geographic locations included Brussels and national capitals, offering both domestic and EU-facing views on CBAM's design and early uptake. Full details on interviewees are available in Appendix D, including actor type, affiliation, location, and interview date. All entries are anonymised to ensure that individuals and organisations cannot be identified.

Interviews were conducted using a semi-structured format, which offered both comparability across cases and flexibility to explore context-specific themes (Aberbach and Rockman 2002; Mosley 2013). A shared guide was used to maintain coherence while allowing respondents to speak freely about organisational roles, timing pressures, coordination challenges, and regulatory clarity. The guide was shaped by the study's theoretical framework, though academic terminology such as "turbulence" was deliberately avoided. Instead, respondents were asked to reflect on how CBAM entered their work, how they interpreted its demands, and what kinds of adjustments it required from their institution. This approach allowed key dimensions of turbulence to emerge in respondents' own terms and helped capture how adaptation was experienced in practice.

The study was approved through the University of Bergen's RETTE system. Written consent was obtained in advance, and all interviews were recorded with permission, transcribed, anonymised, and stored securely in line with GDPR and national data protection regulations. Given the sensitivity of organisational roles and affiliations, anonymisation was prioritised throughout, including in all citations and reporting of findings.

3.4 Analytical Strategy

This thesis applies a qualitative, abductive analytical strategy to examine how CBAM generates governance turbulence across administrative and industrial settings in Norway and Sweden. The turbulence framework provides the analytical lens, operationalised through four core hypotheses. The first three correspond to the dimensions of shifting parameters (H1),

intercurrence (H2), and temporal complexity (H3), while a fourth hypothesis (H4) explores whether Norway's non-EU status contributes to greater turbulence compared to an EU member like Sweden.

Document Analysis

The document analysis focused on how CBAM has been introduced, interpreted, and embedded over time within each country. Documents were uploaded and organised in NVivo to support a structured reading process. They were sorted by country, actor group, publication phase, and document type, which allowed patterns to be traced across sectoral and governance levels and over time. Each document was read closely to identify how turbulence emerged around issues of timing, responsibility, and administrative engagement.

The tables in Appendices A–C summarise each document's origin, publication period, and typical tone (e.g. cautious, strategic, reactive). These classifications supported a layered reading of how different actors framed CBAM at different stages. Tone was read as a signal of positioning, not as a measure of support or opposition. A cautious or procedural tone often pointed to internal uncertainty, while more strategic language suggested clearer alignment. Tracking these signals helped build a picture of how CBAM entered procedural routines and where friction surfaced across the governance system. For example, Norway's early consultation documents revealed fragmented administrative ownership and industry pressure to commit to CBAM, while Swedish implementation texts displayed a more anticipatory and coordinated approach.

Different document types revealed different aspects of turbulence. Letters and legal notes exposed policy uncertainty and administrative hesitation. Technical guidance materials made visible the challenges of aligning domestic procedures with EU requirements. News articles and media commentary captured public expressions of concern, especially where industry actors raised alarms about competitiveness or carbon leakage. These documents helped map when and where turbulence took hold, and how institutions reacted under pressure.

Interview Analysis

Interviews were uploaded, sorted, coded, and analysed in NVivo using a structured codebook directly aligned with the study's four hypotheses (see Appendix E). Each hypothesis was

operationalised through multiple subcodes, combining conceptual indicators (e.g. "knowledge or resource gaps", "timeline mismatch") with interpretive themes (e.g. "EEA and non-EU disadvantage", "fairness and justification claims"). The codebook enabled systematic cross-case comparison while allowing room for inductive coding of emergent framings that were not initially anticipated, such as geopolitical concerns or friction between national and EU-level actors.

Interview analysis focused on how turbulence was experienced, interpreted, managed, or contested by actors working within or around CBAM's evolving regulatory structures. NVivo was used to structure and visualise variation across respondent types and national contexts, helping to track patterns and outliers across different turbulence dimensions.

Crucially, codes did not remain static tags but served as analytical building blocks. After coding was complete, results were thematically grouped and reviewed to identify which insights most clearly illustrated or challenged the hypotheses. These themes were then prioritised according to their analytical depth, frequency across cases, and their ability to sharpen the conceptual categories introduced in the turbulence framework.

This structured coding-to-analysis pipeline directly informed the writing process. The analysis chapter was organised by turbulence dimension, with interview data integrated alongside document findings. Within each section, coded themes guided which actor perspectives were brought forward and how they were framed: whether as reinforcement, contradiction, or extension of the documentary interpretation. This allowed the analysis to remain grounded in the empirical material while also advancing the theoretical claims of the thesis.

Integration and Comparative Logic

The comparative element of this study is not confined to the design stage. It is carried through into the analysis itself, where Norway and Sweden are read alongside one another as part of the same regulatory environment but positioned differently within it. The goal is to first identify whether turbulence exists, and then to trace how it takes form and gains meaning through the administrative and sectoral structures in which it is encountered.

What the analysis seeks to show is how national actors engage with the same policy, CBAM, from two distinct positions in the EU's regulatory landscape. Norway participates through alignment and adaptation, without access to the rulemaking process. Sweden is involved from the beginning, with obligations shaped through its participation. These differences matter. They affect how quickly institutions respond, how clearly roles are defined, and how openly implementation challenges are communicated. By following how CBAM moves through both systems, the analysis builds a layered picture of how turbulence is produced, recognised, and managed under conditions that are not formally symmetrical.

The document and interview material were read in direct relation to one another. Documents provided a sense of how institutions signalled readiness, responsibility, or uncertainty. Interviews then revealed how these signals were interpreted by the actors involved, including where they were contested or quietly redefined in practice. This movement between data types allowed the analysis to stay close to policy processes while also uncovering the tensions that often remain out of view in formal texts.

Findings are structured around the three dimensions of turbulence, with one section dedicated to each. These dimensions give analytical structure to the empirical material while also allowing comparisons across cases. At each stage, the aim is to identify where turbulence emerges, how it is handled, what it displaces, and which actors are left navigating its effects. The fourth hypothesis, which addresses whether Norway's non-member status amplifies turbulence, runs after the three dimensions and draws together the comparative insights into a final analytical thread.

3.5 Methodological Limitations

It is important to be transparent about methodological constraints before turning to the empirical analysis. While broader limitations concerning the scope and generalisability of the thesis are addressed later in the discussion chapter, this section highlights methodological issues that shape how data was collected, processed, and interpreted. These points are important to acknowledge in order to clarify what the research design allows and what it cannot fully capture.

This study faces a number of methodological constraints tied to data access, sampling, and interpretive procedure. First, the document material reflects only what was available through public sources at the time of collection. Internal communications, draft guidance, or informal instructions were not accessible, limiting insight into behind-the-scenes coordination. While the dataset was broad, it was shaped by the level of transparency and the timing of official publication.

Second, the interview sample was built through purposive recruitment based on relevance to CBAM, not representativeness. Several key actors did not respond or were unavailable during the fieldwork window. Some actor categories are underrepresented, particularly at the EU level and among downstream industrial users. The sample reflects depth within exposed sectors, but not across the full range of implementing bodies.

Third, all material was analysed interpretively, which introduces the possibility of researcher bias. Documents were read for how they framed CBAM and signalled forms of turbulence, while interviews were examined for how actors described the challenges it brought. Although NVivo was used to structure and track the material, the selection of what to emphasise and how to interpret it reflects subjective judgement. These choices influence which patterns are highlighted and how the findings are ultimately presented.

Chapter 4: Analysis

4.1 Shifting Parameters

4.1.1 Document Findings

CBAM Introduces Tasks That Destabilise Administrative Routines Across the Board

Even before national authorities begin implementation, CBAM introduces a series of complex, evolving tasks that challenge administrative stability. These include assigning embedded carbon values at the product level, verifying third-party emissions reports, managing importer accounts in a new centralised registry, and coordinating border taxation through customs authorities. These demands disrupt traditional divisions of labour between environmental, industrial, and financial authorities, and require new forms of inter-agency cooperation that are not easily absorbed into existing routines.

Documents outline these routines, the European Commission's implementing regulation (European Commission 2025a) mandates that member states ensure coordination between national customs and environmental authorities. This represents a fundamental shift in governance logic thereby requiring actors who previously operated independently to assume joint operational responsibility. The CBAM registry guidance (European Commission 2025b; 2025c) adds further complexity, outlining detailed requirements for importer account management, verifier accreditation, and emissions data validation, which are functions that many national systems have no established infrastructure to support. Further clarification is provided in the Commission's Omnibus Q&A (European Commission 2025f), which explains that the Omnibus functions as a legislative mechanism to revise multiple EU legal acts simultaneously, ensuring that customs, emissions, and enforcement frameworks are adapted to support CBAM's rollout. It also notes that reporting templates may still be adjusted as the permanent system takes shape, signalling that key elements of implementation remain open to revision. This cumulative uncertainty compounds the administrative burden and forces actors to build implementation capacity while policy requirements remain in flux.

These challenges are not theoretical. Independent analyses and policy reports have warned of the pressure CBAM places on existing governance structures. Agora's report on the CBAM transition argues that the mechanism requires significant administrative investment with insufficient preparatory support and notes the risk of uneven implementation across member

states (Sartor et al 2022). The OECD working paper on CBAM's potential effects reinforces this point, observing that the mechanism introduces a compliance layer that is particularly challenging for smaller, less-centralised administrative systems (Dechezleprêtre et al 2025). The Sandbag report Loopholes and Lessons adds that delayed phase-out of free allowances has created confusion within domestic bureaucracies over whether to prioritise legacy ETS procedures or prepare for full CBAM integration (Assous et al 2024). These tensions are mirrored in media reporting. For instance, a Politico article from February 2025 notes "that green reporting rules had proven to be too burdensome and in some cases disproportionate" (Gros 2025).

Administrative Ambiguity and Delayed Anchoring in Norway

In Norway, CBAM's early rollout was not marked by an absence of a leading authority per se, but by administrative ambiguity, shallow political commitment, and prolonged uncertainty over legal relevance. While the Ministry of Finance initially held nominal responsibility for CBAM, it failed to take on a proactive or coordinating role. Its communications were vague and limited in scope, with no meaningful effort to activate administrative routines or prepare for the mechanism's operational demands (Finansdepartementet 2021a; 2022a). As a result, implementation was effectively placed in a holding pattern, with no agency acting as lead and no clear delegation of responsibilities for emissions tracking, customs coordination, or border pricing.

The confusion was amplified by prolonged debate over whether CBAM was EEA-relevant at all. As late as 2023, the Ministry of Foreign Affairs publicly questioned whether CBAM would be EEA-relevant at all (Energi og Klima 2023). The absence of a definitive legal stance stalled not only policy commitment but also the administrative routines typically triggered by formal EU obligations. Government publications throughout 2022 and 2023, including the Revised National Budget (Finansdepartementet NO 2021c; 2023b) and white paper documents such as The Low-Emission Society (KLD 2025a) referred to CBAM sporadically and often speculatively, portraying it as a future policy consideration rather than a binding development. This lack of clarity discouraged cross-ministerial coordination and stalled agency-level planning.

The effects of this ambiguity are well documented. A wide range of consultation responses from major stakeholders including Hydro (2021), Statkraft, Norway's state-owned hydropower company (2021), Confederation of Norwegian Enterprise (NHO) (NHO 2021), Statistic Norway (SSB) (SSB 2021), and the Norwegian Ministry of Climate and Environment (KLD 2021), they all expressed concern over unclear responsibility structures, the absence of procedural guidance, and a general lack of state engagement.

Hydro explicitly warned that Norwegian industry was at risk of regulatory disadvantage due to the government's delay in signalling a credible implementation path (Hydro 2021). SSB (2021) questioned how emissions data would be collected and validated, and NHO emphasised the need for clear, early designation of a national authority. These concerns were echoed in press coverage, where outlets such as Energi og Klima, Finansavisen, and Dagens Næringsliv described Norway's position as passive, delayed, and out of step with EU timelines (Energi og Klima 2022; Finansavisen 2021; Dagens Næringsliv 2023).

The lack of procedural guidance and limited administrative engagement remained unresolved well into the transition phase. In September 2024, a joint open letter from NHO, the Norwegian Confederation of Trade Unions, the United Federation of Trade Unions, the Confederation of Vocational Unions, the Federation of Norwegian Industries, and Renewable Norway called on the government to take more decisive action to ensure meaningful participation in CBAM (NHO et al. 2024).

The Eldring Report on Norway's EEA relations further substantiates this pattern by identifying systemic weaknesses in how Norway approaches the implementation of politically sensitive EU regulations. The report notes that policy areas involving cross-sectoral coordination or economic redistribution, such as CBAM, often fall through the cracks and lack clear ownership and timely anchoring (NOU 2024, 21). It highlights the tendency of ministries to wait for formal EEA clarification rather than acting pre-emptively. This pattern contributed to prolonged uncertainty around CBAM. The report's broader conclusion is that Norwegian adaptation to complex EU instruments is weakest where domestic policy salience is low and where coordination across ministries is required. This finding captures the core challenge faced during CBAM's rollout.

Administrative powers' anchoring of the legislation only began to materialise in early 2025, when the Norwegian Environment Agency formally announced it would take over CBAM implementation and published a national guidance note (Miljødirektoratet 2025a). This marked the first clear administrative signal of commitment and came years after the EU had finalised its regulations and Sweden had established functioning guidance systems. In contrast to Sweden, where the Swedish Environmental Protection Agency had already issued detailed emissions templates and importer instructions by mid-2023, Norway's procedural delay reflected a deeper hesitation on not just over how to implement, but over whether to implement at all.

Sweden: Early Assignment and Administrative Strength Meets Procedural Turbulence

Sweden's approach to CBAM demonstrates clearer administrative coordination than Norway, underpinned by early administrative engagement and assignment of responsibility. The Swedish Environmental Protection Agency was designated as the national competent authority early in the transitional phase and began producing operational guidance for importers by mid-2023. This included detailed FAQs, technical instructions on emissions reporting, and calculation templates tailored to the Swedish context (Naturvårdsverket 2023b; 2024a). These outputs reflect a governance model better equipped to absorb emerging regulatory expectations and more comfortable with anticipatory administrative planning.

This early assignment helped insulate Sweden from some of the turbulence that characterised Norway's early handling of CBAM. By establishing a clear administrative lead, Sweden avoided confusion over agency mandates and signalled readiness to coordinate across the climate, industry, and customs sectors. Reports and press releases from the Ministry of Finance and the Ministry of Climate and the Environment affirmed the country's commitment to integrating CBAM into national structures (Finansdepartementet SE 2023; Regeringskansliet 2023). In contrast to Norway's speculative treatment of CBAM, Swedish government documents consistently referred to it as an active and ongoing process of administrative implementation.

However, even in Sweden's comparatively structured setting, turbulence has emerged in more subtle forms. First, the technical and cross-cutting nature of CBAM's requirements such as linking emissions data with customs processes and industrial supply chains has unsettled

traditional boundaries of agency responsibility. While the Environmental Protection Agency took the administrative lead, the integration with customs and financial governance created coordination frictions. Industry representatives have raised questions about how emissions data interfaces with customs clearance, who bears responsibility for non-compliance, and how roles are divided between economic and environmental regulators (Jernkontoret 2023; Naturvårdsverket 2025g).

Second, media commentary and policy analysis point to growing pressure on administrative resources. The volume and technical complexity of CBAM-related reporting requirements, particularly product-level emissions attribution, pose administrative challenges, even for a high-capacity bureaucracy like Sweden's. Analysts and business actors alike have raised concerns about whether the Environmental Protection Agency has sufficient capacity to manage the regulatory load, especially as reporting shifts from transitional requirements to full financial enforcement in 2026 (Jakobsson 2024; Svenskt Näringsliv 2023). In parliamentary briefings, concerns were voiced over whether importers, particularly small and medium-sized enterprises, could navigate the system without further clarification or support from national authorities (Riksdagen 2022b).

What distinguishes Sweden, however, is not the absence of turbulence, but the nature of it. Whereas Norway's turbulence stemmed from ambiguity, indecision, and silence, Sweden's emerges from task complexity and implementation strain. The Environmental Protection Agency's early action helped establish administrative expectations, but the burden of operationalising a multi-sectoral, highly technical EU instrument has still revealed limits within Sweden's established procedures. CBAM has redefined what the environmental authority is expected to do, stretching its function beyond traditional emissions tracking toward economic and trade-linked regulatory oversight.

4.1.2 Interview Findings

Norway's Role Ambiguity Reflects Limited Internal Coordination

Much of the uncertainty around CBAM implementation relates to how EU rules were introduced in stages, with essential information and requirements released incrementally over time. This staggered rollout limited the ability of national authorities to coordinate early, assign responsibility, and prepare administrative systems. Combined with internal

fragmentation, slow mobilisation, and reluctance to define long-term responsibility, these conditions have prolonged administrative uncertainty.

Interview 6, a Brussels-based climate policy journalist, describes the Norwegian administration as fragmented and risk-averse. In this account, ministries operate without coordination, and CBAM is treated more as a task to be delayed or deferred than a priority: "It's a combination of political conflict and laziness… Norwegian bureaucrats and politicians have not been particularly good... it's like they buried these things or pushed them aside in the hope they would go away." "Each ministry does its own thing. There's no coherent approach." These comments reinforce the broader picture of a governance system struggling to mobilise around CBAM, not due to technical incapacity, but because of political disengagement and siloed administrative structures that leave key responsibilities adrift. Interview 7, conducted in March 2025 just two weeks after the Norwegian Environment Agency was designated as the national competent authority, offers a cautious but informative reflection from within the administration. At the time of the interview, work was still in its early stages, and internal procedures were not yet fully in place. The respondent noted: "We've had very little contact with industry so far... we haven't yet clarified how we will organise this." These comments build on the document analysis, which pointed to a gradual and tentative rollout, by showing how limited engagement and unresolved organisational questions were still present at the administrative level. The challenge here seems less related to legal uncertainty and more to the difficulty of translating formal responsibility into coordinated and strategic action.

CBAM's Shifting Parameters Trigger Improvisation in Sweden

The Swedish case demonstrates that turbulence under shifting parameters can emerge even in high-capacity systems. While the document analysis suggested that administrative responsibility was clearly designated from the outset, the interview material complicates this impression. Official records point to the early appointment of the Environmental Protection Agency as a sign that systems were in place and ready to handle CBAM implementation, but Interview 8 describes a more fragmented beginning. From the perspective of industry, there was initially no clear point of contact within the government. As the interviewee explains, "Once we saw it [CBAM] actually entering force, there wasn't even any government agency

in Sweden responsible for it, which made it, of course impossible for companies to do anything."

Although the Swedish Environmental Protection Agency was soon appointed as the responsible body, the transition was marked by uncertainty. "They didn't have enough staff or information or routines to process this or anything in the beginning," the interviewee noted. In the absence of guidance, sectoral actors were forced to step in: "It was so unclear that we decided to do something we normally don't. Which is get some consultants to write a manual for how to have a company adhere to the new responsibilities in CBAM. Normally we don't do that because that is the responsibility of the government agency. That's not our job, but in this case we had to do the government's job. Because the government didn't do it."

The Swedish experience shows how turbulence can be managed through rapid adjustment. Once the Environmental Protection Agency was formally designated, staffing increased and communication routines improved. According to the same interviewee, this laid the groundwork for a more stable and coordinated rollout during the transitional phase in 2023 (Interview 8).

Interview 10 further supports this, pointing to regular coordination with other national competent authorities across the EU "There is definitely a dialogue between the national competent authorities... to ask each other questions and help each other out if anything comes up." The existence of these cross-border dialogues suggests that timely designation does more than fulfil legal requirements. It enables access to spaces of shared learning and reduces the need for improvisation at the national level.

Yet even with these improvements, Interview 9 notes that practical friction has not disappeared. Companies still face burdens linked to regulatory overlap between CBAM and the ETS: "There's been a lot of practical problems… where our companies have to report emissions that is already reported in ETS, which is unnecessary work. And of course that creates limitations for the companies but our competent authority haven't had any possibility to do anything about that because the Commission has sort of said that: Well, that's the way it works at the moment." This quote underscores that shifting parameters can persist even

within a seemingly stable structure, particularly when EU-level rules constrain national flexibility.

This process of stabilisation does still stand strongly in contrast to the Norwegian trajectory. While the document analysis highlighted the late designation of Norway's competent authority, the interview material helps clarify why this matters. In the absence of a centralised authority, early adaptation must occur through fragmented or temporary means, often at the expense of coherence and industry engagement. The Swedish case suggests that once responsibility is clarified and followed up with administrative support, the turbulence associated with shifting parameters becomes more manageable, yet still doesn't eliminate it.

Unresolved Turbulence Where Implementation Trails Legal Obligation

Even in contexts where political support for CBAM is strong, turbulence under shifting parameters arises when administrative systems lag behind policy ambition. The interviews show that legal mandates and political signalling alone do not resolve uncertainty. What matters is whether administrative procedures are in place to translate obligation into operational readiness.

In the Norwegian case, Interview 5 highlights how the lack of a domestic legal framework continues to delay implementation. "There's nothing in current Norwegian law where it could naturally be placed, so a new law, a CBAM law, has to be created. And that means it has to go through the Norwegian Parliament in the usual legislative process, which takes time, and that's one of the reasons why we won't be implementing this before 2027." This is not just about slow progress; it reflects the absence of a pre-existing institutional model that can be adapted.

The document analysis pointed to the timing of Norway's legal transposition as a source of turbulence, but the interviews add a crucial dimension. Those working inside the system are navigating unfamiliar territory without clear reference points. Delays in administrative follow-up do not simply create friction; they contribute to a sense of drift, where responsibility is acknowledged in principle but remains unresolved in practice.

Sweden's experience with CBAM highlights how domestic interpretation and engagement shape the degree of turbulence during early implementation. While formal alignment with EU processes might suggest a smoother path, Interview 10 offers a more grounded perspective: "I think the information is available... it's more a question of taking in all the information. The European Union has published lots of guidance on their websites." The comment points to a deeper challenge. The issue is not the absence of support, but the administrative effort required to absorb and act on it.

This perspective reframes the role of the European Commission. Rather than acting as a hands-on coordinator, it has provided written materials and technical documentation. Whether this translates into effective national procedures depends on how domestic actors absorb and apply the information. The comment from Interview 10 reinforces a central theme in this chapter: turbulence under shifting parameters reflects not only the design of external rules but the capacity and willingness of national administrations to respond. Where engagement is active and information is processed strategically, CBAM becomes easier to implement. Where administrative coordination lags, even clear guidance may struggle to gain traction.

4.1.3 Synthesis

The findings confirm Hypothesis 1: CBAM generates turbulence by reconfiguring institutional roles and disrupting established governance routines. In both countries, responsibility for implementation was initially unclear, prompting reactive adaptation rather than coordinated planning. In Norway, this ambiguity was reinforced by delayed political commitment and weak administrative mobilisation. In Sweden, early designation helped, but implementation still exposed internal strain and capacity limits. Across cases, turbulence under shifting parameters stemmed not just from legal and administrative uncertainty, but from the challenge of embedding a new EU regulatory instrument into domestic systems that were not yet aligned or fully prepared. This turbulence was notably more pronounced in Norway, where government bodies operated without coordination, and key decisions about responsibility and procedures were delayed for a longer period, with fewer efforts in place to bring clarity or structure.

4.2 Intercurrence

4.2.1 Document Findings

CBAM Overlaps and Complicates an Existing Carbon Pricing Scheme

Documents show that CBAM and the EU ETS were initially designed to serve the same goal of carbon pricing but crucially in practice they do so through fundamentally different mechanisms. The ETS governs emissions at the point of production within the EU and EEA, while CBAM places the burden on importers to report embedded emissions in carbon-intensive goods entering the EU market. This introduces a second regulatory system that overlaps in sectoral scope but differs in territorial application and administrative logic. While the ETS relies on centralised market-based allowances, CBAM uses border adjustments with national customs authorities as key actors. This duality alters the foundation of carbon governance by layering a new regime atop an existing one.

EU documents acknowledge that this shift is part of a broader transition. As CBAM is gradually phased in, free allowances under the ETS will be phased out. The Implementing Regulation (European Commission 2023), the Carbon Border Adjustment Regulation (European Commission 2023), and the Omnibus Q&A (European Commission 2025a) all present this transition as a step toward fairer climate pricing. However, they offer little clarity on how the two regimes will be stabilised or made coherent in practice. This has created uncertainty for national administrations, who must coordinate two systems while responding to evolving EU guidance.

While this regulatory layering creates friction, it is not the only source of turbulence. Both Norwegian and Swedish documents raise concerns about CBAM's internal design. These are not simply complaints about transitional complexity or administrative strain. They point to fundamental design flaws that create pressure within and between institutions, generating what this thesis understands as intercurrence.

The Swedish Steel Producers' Association, for example, highlights the export problem. CBAM applies to imports but provides no relief for EU-based producers competing in third-country markets, leaving export-oriented industries exposed despite complying with domestic climate standards (Jernkontoret 2023). European Aluminium raises the omission of indirect emissions, such as electricity used in production, warning that this incentivises imports from

countries with less transparent energy systems (European Aluminium 2023). Hydro also flagged aluminium producers' scrap-loophole dilemma as a structural distortion that disadvantages low-carbon producers and undermines fair competition (Hydro 2023a; 2023b; 2025)

In Norway, Industry Sees CBAM as Disrupting an Established ETS-era Settlement

Document analysis shows that Norwegian industry actors frame CBAM as a disruption to the established ETS-era policy settlement. Aluminium producers had relied on compensation for indirect emissions to preserve competitiveness in energy-intensive exports, and CBAM is seen as threatening this support without offering a credible replacement.

This concern is evident across consultation documents and public commentary. Hydro repeatedly warn that the CBAM's current design risks penalising export-oriented, low-carbon producers and undermining long-term investments (Hydro 2021; Røynesdal and Mysterud 2025). The Federation of Norwegian Industries argues that ending CO_2 compensation before CBAM is fully operational would erode competitiveness without delivering clear climate benefits (Federation of Norwegian Industries 2021). NHO also called for parallel compensation mechanisms, describing the transition as premature and poorly aligned (NHO 2021).

Letters from industry organisations to the Ministry of Finance and the Ministry of Trade and Industry underline this tension. These communications, some of which were cited in national media, do not simply express uncertainty; they accuse the government of advancing CBAM implementation without resolving the conflicts it creates with the existing ETS structure (E24 2024). The media echoed these criticisms, questioning whether Norwegian authorities had fully grasped the cumulative burden on key export sectors or offered the clear guidance needed to manage it (Energi og Klima 2024, DN 2023).

Beyond compensation, the aluminium sector raised repeated concerns over CBAM's treatment of scrap aluminium. The scrap loophole allows semi-processed aluminium to enter the EU without triggering CBAM obligations if classified as recycled, despite the fact that emissions data for such materials can be highly unreliable. Hydro described this loophole as particularly damaging for low-emission producers operating in jurisdictions with rigorous

environmental standards (Hydro Roundtable, CICERO 2025). The complaint was not simply about loopholes in a new system; it was about how a second regime had been introduced without correcting for distortions it created within an already established policy framework.

Norwegian industry responses to CBAM reflect a deeper intercurrence: the collision between a familiar system based on negotiated trade-offs and a new mechanism designed with external logic. Where the ETS had evolved alongside sectoral concerns, CBAM arrived with limited consultation and little administrative adjustment. As a result, key actors responded not with technical confusion but with strategic resistance. This friction between policy regimes, where old expectations and new demands co-exist without reconciliation, illustrates intercurrence as overlap *and* collision.

Sweden Absorbs CBAM into Existing ETS Structure, but Turbulence Still Shows

Sweden integrated CBAM more coherently into its climate governance framework than Norway, establishing administrative clarity and a consistent narrative early on. Such a proactive stance framed CBAM as a logical expansion of the existing climate regime, complementing the EU ETS. Ministry communications reinforced this interpretation, often describing CBAM as a step toward improving carbon cost parity between domestic and foreign producers (Finansdepartementet SE 2023c).

Despite this, intercurrence pressures remain evident. Sweden's policy coherence has not resolved underlying tensions created by CBAM's layering onto the ETS framework. Reports such as the Swedish Climate Policy Council 2025 review noted unease about the treatment of exports, observing that the absence of CBAM compensation mechanisms could create sectoral disadvantage for Swedish firms engaged in global trade (Persson et al 2025). Industry stakeholders, including the Swedish Steel Producers' Association the Confederation of Swedish Enterprise, reported concern on their webpages, that the mechanism threatens to erode existing ETS-related benefits, particularly free allowances, without sufficient policy support to mitigate competitiveness risks (Svenskt Näringsliv 2021; Jernkontoret 2023). While the European Commission has stated that CBAM will eventually replace free allocations under the ETS, this phase-out remains politically sensitive and operationally vague, creating delays in planning, reluctance to commit to implementation pathways, and uncertainty among national authorities about how to proceed (European Commission 2023b).

Concerns about CBAM's policy design also feature prominently in Swedish commentary. Multiple actors have highlighted that the mechanism's exclusion of indirect emissions distorts competition for electricity-intensive sectors like steel (Jernkontoret 2024; Naturvårdsverket 2024b). Likewise, the unresolved treatment of exports has been flagged in both industry publications and policy reports as a flaw that undermines CBAM's climate and trade rationale. While Naturvårdsverket's guidance acknowledges some of these concerns, it offers little resolution, reflecting the limits of national agencies in addressing EU-level design issues (Naturvårdsverket 2024a).

Nevertheless, Sweden's overall response to intercurrence has been administrative consistency. Government materials and parliamentary discussion have remained aligned in presenting CBAM as an evolving climate regulation, avoiding the strategic ambiguity that characterises Norwegian framing. Even when industry groups challenge the mechanism's fairness or clarity, Swedish authorities tend to frame these critiques as implementation issues rather than fundamental regime conflict. This coherence helps mute overt turbulence, but it does not eliminate the policy layering that CBAM generates.

In short, Sweden demonstrates that even high-capacity states embedded in EU policymaking are not immune to intercurrence. While administrative continuity and narrative clarity can contain turbulence, structural tensions persist when new policy instruments like CBAM are introduced alongside existing frameworks without fully resolving their conceptual and operational overlaps.

4.2.2 Interview Findings

Conflicting Expectations of Fairness: CBAM's Trade-Climate Tensions

CBAM's turbulence is not only the result of overlapping regulatory demands. It also stems from unresolved tensions between its intended climate ambition and its consequences for industrial competitiveness. Interviews reveal that actors interpret CBAM through different assumptions about fairness, effectiveness, and strategic purpose. All actors interviewed saw CBAM as a positive and necessary policy tool, broadly supportive of its aims and intent. However, they differed in how they interpreted its fairness, readiness, and long-term viability. What some viewed as a crucial mechanism to safeguard European industry and climate

ambition, others saw as incomplete or potentially disruptive in practice. These diverging interpretations generate intercurrence by challenging the coherence of CBAM's policy logic and destabilising its legitimacy across sectors and national contexts. While the document analysis identified key design gaps including the treatment of exports, indirect emissions, and downstream products, the interviews add urgency and detail to how these gaps are experienced and politicised by affected actors.

The strongest expressions of concern come from Norwegian industry, where CBAM is perceived not as protective, but as a threat to Europe's industrial base if implemented without further adjustment. One respondent (Interview 2) described the current framework starkly: "If you were to implement it 'as is', then it's a major risk." "The fear is that production moves out of Europe, for example to China... and then you've achieved nothing other than shutting down European industry." What emerges is a view of CBAM as strategically incoherent: a climate instrument that risks deindustrialisation without credible leakage prevention. While export exclusion is acknowledged in formal documents as an unresolved issue, the interviews show that it is treated by industry not as a technical footnote, but as a defining vulnerability.

Swedish actors, while less alarmed, share concerns about design limitations and uneven coverage. Interview 9 pointed out that "CBAM should include both direct and indirect emissions,", and "it should also be expanded to steel-intensive downstream products." These comments do not frame CBAM as a failure, but as an incomplete regime. The critique is not that CBAM goes too far, but that it's technical details do not go far enough. The respondent also mentioned the absence of a structural solution for exports, proposing free allocation for goods sold into third-country markets as a temporary remedy. The implication is clear: if CBAM is to level the playing field, it must do so across the full value chain. The Swedish framing differs in tone from the Norwegian case, but the underlying issue is similar in that the current configuration of CBAM is not seen as sufficiently robust to secure both climate integrity and industrial viability.

Other actors offer a critical perspective on industry concerns. An NGO representative (Interview 3) acknowledged, but remained critical of the tension between climate policy and competitiveness: "There's a general scepticism when it comes to climate policies and a problem of linking climate policy with competitiveness… some players don't really

understand that and think that the two things are fighting against each other." The same interviewee noted that "[the] industries called for the European Union to have an early review… which will include a solution for exports among other things," implying that calls for reform may be partly driven by unease with the policy's direction. This view complicates the sharper concerns raised in Interview 2, where competitiveness risks are more strongly emphasised. While such warnings serve an important role in shaping the policy process, they also reflect the interests of actors navigating an evolving regulatory environment. The European Union has already begun responding to key design challenges through technical updates and stakeholder consultation, which indicates that CBAM remains in a transition phase. In this context, some degree of turbulence is to be expected. Where some actors interpret CBAM as a strategic tool for climate governance, others fear it could become an economic threat. That gap in interpretation is itself a source of turbulence.

Finally, sectoral differences further complicate the debate. Even among actors who support the CBAM framework, views diverge sharply on which emissions and materials should be covered. Interview 9, stated, "We don't think scrap should be included in CBAM… that's an aluminium issue." This seemingly minor observation reveals a deeper challenge: a mechanism designed to operate across multiple sectors is already being interpreted through narrow, sector-specific logics. What is viewed as a loophole in one sector is seen as an overreach in another. These differences reinforce the idea that CBAM's role within the regulatory system remains unclear, and that actors lack a shared baseline for assessing whether the regulation is working as intended.

Diverging Interpretations of CBAM–ETS Alignment

While CBAM was introduced as a mechanism to complement and extend the ETS, interview material suggests that actors involved in implementation do not necessarily experience it this way. In theory, CBAM is designed to mirror the ETS at the border by applying equivalent carbon pricing to imported goods. In practice, however, the two systems are seen as operating on fundamentally different assumptions. This perceived misalignment generates intercurrence not through uncertainty about how overlapping instruments relate, and whether they cohere as part of a unified climate governance architecture.

Norwegian industry actors, in particular, critically interpret CBAM and ETS as structurally different. One respondent (Interview 4) described CBAM as conceptually reversed: “CBAM functions somewhat like an ETS in reverse, because it doesn’t begin with the major factories. It begins with the product.” The distinction here is not semantic. It signals a deeper unease with how CBAM displaces regulatory focus from site-based emissions to product-based accounting. For actors who are accustomed to the ETS framework find that CBAM introduces a logic that shifts responsibility to importers and customs reporting, untethered from the established operational rhythm of allowances, trading, and compliance cycles. Rather than an extension of ETS, CBAM is experienced as a different kind of policy altogether.

However, this interpretation is not universally shared. Swedish respondents accept that CBAM and ETS differ in scope and structure, but they do not see the mechanisms as conceptually at odds. Interview 9 acknowledged the shift in emphasis but framed it as a manageable complication: “ETS is site-based. It’s very clear: you have a site, you have emissions. It’s easier to measure or calculate. But with CBAM... you have to calculate that cost on the product to make it equivalent to the cost which is actually borne on the site. So in that way CBAM is much more complicated.” The concern raised here is operational. Rather than challenging the purpose of CBAM, the interview points to the technical difficulty of translating site-based emissions logic into product-level reporting. This complexity, while not a rejection of the mechanism itself, raises questions about its practical effectiveness and the risk that administrative burden may weaken its impact.

Together, these perspectives reveal that intercurrence between CBAM and the ETS stems from how actors interpret the relationship between the two regimes, whether as part of a coherent system, or as instruments with separate logics and obligations. For Norwegian actors who already face a delayed start in implementing CBAM and have had limited influence on its design, the lack of conceptual clarity reinforces a sense of regulatory disconnect. For Swedish actors, who benefit from earlier implementation-planning and stronger EU coordination, turbulence is framed as in a more temporary and technical tone.

Design Gaps and Loopholes: Internal Incoherence as a Source of Turbulence

Intercurrence becomes visible when inconsistencies within CBAM's policy design create friction during implementation and interpretation. Interview material points to several unresolved gaps that compromise the internal coherence of the mechanism. These are not viewed by actors as minor technical issues to be fixed over time. Rather, they are seen as structural weaknesses that distort CBAM's intended function, create uncertainty for affected sectors, and weaken its credibility as a climate policy tool.

The most pressing concern is the scrap loophole, raised by aluminium industry actors. Interview 6 criticised the Commission's understanding of the sector, stating: "The policymakers in the Commission didn't understand how important scrap is in the value chain." As reported by documents recycled aluminium is classified differently to primary aluminium, and emissions embedded in scrap are not always captured in product-level reporting, this loophole allows producers to reclassify carbon-intensive production to avoid CBAM coverage. Interview 4 elaborated on the scope of this risk: "This affects half the world's aluminium volume… the loophole is so easy to exploit, and so large, that it could risk undermining the entire CBAM." For these actors, this is not a narrow exemption. It is a fundamental threat to the mechanism's credibility and effectiveness.

Concerns about design gaps are not limited to aluminium. Actors from the steel sector and the Swedish administration also point to critical omissions that weaken CBAM's coherence. Interview 9 argued that "CBAM should include both direct and indirect emissions," and "it should also be expanded to steel-intensive downstream products," warning that without such coverage, the mechanism risks distorting competition and missing significant sources of embedded emissions. The same interviewee added, "The most important for us is, I mean it's the export issue. How can we handle products produced in EU with emission costs that are exported to third countries?" These observations suggest that CBAM's credibility depends not only on how it is implemented, but also on the structural completeness of its regulatory scope. When key elements are excluded, it undermines both fairness and environmental effectiveness, reinforcing turbulence within and across sectors.

From a civil society perspective, similar concerns are raised about enforcement and the risk that CBAM rules can be bypassed. Interview 3 noted: "One of the biggest issues is addressing

the problem of circumvention.", and later reflected that the Commission's plan was to introduce CBAM in a phased manner and fix such problems later: "Initially, the Commission wanted to tackle this problem after at least one or two years from the implementation of CBAM... the Commission wanted to wait for this to happen and to see how the impact on industry was and then kind of adjust it along the way." However, as the earlier interviews show, industry actors see this delay not as flexibility, but as a failure to take their concerns seriously. Rather than reassuring, the Commission's phased approach is widely interpreted as a failure to confront and resolve key structural issues in the policy.

Fragmented Governance and Asymmetric Access

Intercurrence under CBAM also manifests through governance processes that position actors unevenly in relation to decision-making and implementation. Interview material reveals that consultation and coordination around CBAM have been shaped by imbalances between sectors, organisations, and even countries that produce. These asymmetries stem from unequal access to power, information, and opportunities to be heard.

Interview 3, offered one of the clearest accounts of procedural asymmetry. The respondent explained that although the NGO they represent is formally part of the expert group advising the European Commission on CBAM, they were excluded from key discussions around the Omnibus regulation. "Closed-door meetings were held "only [with] industrial players… some not even part of the CBAM scope," revealing a consultation structure that privileged specific interests while marginalising others. This exclusion was not only a matter of access, but of credibility. As the respondent put it, while the Commission "claims to be very open to inputs," there is often "no way of knowing whether they're going to read them," and no clear process to ensure that feedback leads to actual policy adjustment. The result is a governance model that appears inclusive on paper, but fails to provide clear feedback loops or demonstrable responsiveness. This undermines stakeholder confidence and contributes to a broader sense of procedural detachment.

The interview data also points to fragmentation within and between organised business actors. Interview 8 described internal disagreement within BusinessEurope, the EU's main cross-sectoral industry federation. According to the respondent, CBAM's technical content and scope were contested among members, making it difficult for the organisation to adopt a

shared position. “If the Commission asks, BusinessEurope, what do you think? Very often the answer is on the one hand, but on the other hand, it’s not so clear.” The interviewee added, “I guess some of the communication coming out from BusinessEurope is not that clear. And the same goes for us. We are very much on the one hand and on the other hand.” This suggests that ambiguity is not only a product of cross-sectoral diversity, but also reflects uncertainty within individual industry groups. Fragmentation is therefore present not just across Europe’s business landscape, but also within organisations that are expected to represent coherent positions. As the same respondent put it, “There are of course a lot of technical details in these regulations that are very hard to comply with and are sometimes even hard to understand.” In this view, part of the problem is simply that the regulation is too complex. When policy rules are hard to grasp, even well-organised groups struggle to coordinate or respond effectively.

4.2.3 Synthesis

The findings confirm Hypothesis 2: CBAM generates turbulence by layering new policy logics onto existing climate, trade, and industrial systems, producing friction across administrative and sectoral boundaries. While some turbulence stems from the expected misalignment with ETS and other regimes, the interviews and documents also reveal deeper concerns about CBAM’s internal coherence. Respondents across sectors highlight design gaps, unclear coverage, and inconsistencies that complicate implementation. Rather than resisting climate policy, actors are trying to work with a mechanism that is not yet fully functional. The turbulence here is not only about regime overlap, but about the strain caused when an unfinished policy is applied to complex and interdependent sectors that require predictability, coordination, and credibility to adapt.

4.3 Temporal Complexity

4.3.1 Document Findings

The EU Sets an Accelerated and Rigid Timeline

The EU’s design of CBAM was not only ambitious in scope, but also in pace. While its temporal structure is already well established, from the 2021 proposal, through the 2023-2025 transitional phase, to the 2026 full entry into force. What is more analytically significant is how this tempo was locked in and legitimised through formal regulations and strategic

communications, leaving limited room for national adjustment. Regulation (EU) 2023/956 initiated CBAM's transition and imposed fixed quarterly reporting obligations from its outset. This was reiterated in the Commission's Implementing Regulation and accompanying Omnibus Q&A, which detailed the reporting cycles, penalties, and administrative expectations required from importers and national authorities alike (European Commission 2023a; 2025f).

Yet even within the EU, this schedule generated internal turbulence. Media sources reveal that the European People's Party and other key actors proposed delaying CBAM's launch, citing readiness concerns and uneven administrative capacity across member states (Politico 2025; Eurometal 2025). These objections, however, were overridden by broader concerns about the EU's international influence and the need to uphold a strong and consistent policy signal. Both the Draghi Report on European competitiveness and the Commission's Communication on the Clean Industrial Deal explicitly link CBAM's fixed timeline to the EU's climate leadership strategy. Delaying implementation, they argue, would signal regulatory weakness and risk undermining Europe's role in global trade negotiations (Draghi 2024; European Commission 2025c).

This layering of temporal urgency onto climate and trade strategy meant that CBAM's calendar was non-negotiable and a fixed architecture to which all other actors were expected to adapt. This marks the onset of temporal complexity: when national institutions must keep pace with externally driven regulation they did not shape, and when aligning with EU timelines is seen as politically necessary, not simply a matter of internal planning. The issue is not merely one of speed, but of power and alignment, a supranational tempo that compresses domestic timelines and produces turbulence through enforced acceleration.

Norway's Delayed Response Fails to Match the EU's Regulatory Tempo

While the EU constructed a clear timeline for CBAM implementation, Norway's response, or lack thereof, failed to synchronise with this regulatory tempo. The first year of the transitional phase passed without a corresponding national rollout. Guidance for importers, registry development, and designation of an active National Competent Authority were all delayed. The Norwegian Environment Agency did not formally announce its administrative responsibility for CBAM until March 2025, over a year after the transitional phase began

(Miljødirektoratet 2025a). In parallel, the Norwegian Tax Administration confirmed that the registry infrastructure remained under development and that no reporting procedures were yet operational (Skatteetaten 2025).

This lag cannot be explained by political opposition or lack of stakeholder interest. On the contrary, editorial coverage across 2021 to 2025 repeatedly urged government action, emphasising the reputational and industrial risks of inaction (Ask 2021a–f; 2022b–i; 2023a–e; 2024a–e; 2025b; Melgård and Gjerstad 2023). Sectoral actors submitted multiple consultation responses as early as 2021, including from Hydro and NHO, which raised questions about regulatory alignment and preparedness. However, these submissions were not followed by substantive government response. Parliament also remained silent. As of mid-2025, no parliamentary hearing had been held to discuss CBAM, and references in budget statements remained brief and speculative, with no structured planning evident.

The clearest expression of this misalignment lies in the government's decision to begin CBAM enforcement in 2027, a full year after the EU's own schedule (KLD 2025b). This delay effectively reinforces the pacing gap between supranational regulation and national uptake. It reflects an inability for administrative actors to respond to regulations within the temporal constraints of a rapidly evolving policy. The administrative model Norway typically employs for transposing EU law is reactive, procedural, and dependent on formal EEA determination and was not calibrated for CBAM's accelerated, multi-agency rollout.

This type of turbulence arises when national institutions struggle to keep pace with the timelines and demands imposed by EU-level regulation. The timing mismatch generated friction both within and between government agencies, as responsibilities and timelines remained unclear, and between public authorities and affected industries, which faced ongoing uncertainty and compliance with EU border procedures.

Sweden's Closer Alignment and Proactive Governance

Sweden's temporal coordination with EU milestones was markedly stronger than Norway's, with relevant administrative and parliamentary actions unfolding in closer sync with the European rollout. Parliamentary documents and public communications show that Swedish actors engaged the CBAM timeline proactively: parliamentary questions on compliance,

exporter exposure, and emissions verification emerged in late 2022 and interest on the matter resurrected again surrounding the omnibus discussions in 2025 (Riksdagen 2022a-b; 2025a-b). Industry-facing organisations such as the Confederation of Swedish Enterprise and the Swedish Steel Producers' Association also issued timely commentary that tracked the progression of CBAM discussions. Their press outputs throughout 2023 and 2024 demonstrate sustained engagement with EU developments as they unfolded, in contrast to Norway's year-long delay in formal mobilisation (Allhorn 2024; Jernkontoret 2023).

The Swedish Environmental Protection Agency played a facilitating role by publishing clear and detailed information about CBAM for Swedish individuals and companies. This was supported by well-timed sequencing, where public communication and administrative activity aligned closely with key EU developments. By matching national implementation efforts to the pace of regulatory change, the agency helped minimise delays and reduce confusion around the new rules (Naturvårdsverket 2021; 2022; 2023a-b; 2024a-e; 2025a-g). Across the document base, there is little evidence that CBAM implementation generated temporal complexity turbulence in Sweden's national governance. Administrative actors carried out national implementation in a structured and coordinated manner, in clear contrast to the delayed and reactive trajectory observed in Norway.

Industry Timing Turbulence and the Asymmetry of Compliance Readiness

While government institutions in Norway and Sweden responded to CBAM at different speeds, regulated industries in both countries faced a common pressure: the reporting clock began before the infrastructure and guidance needed to comply were fully in place. The mismatch between regulatory activation and practical readiness generated a secondary layer of turbulence, one rooted not in administrative inaction, but in the compressed timelines handed down to firms and the industry, expected to operationalise CBAM on short notice.

This turbulence is visible across multiple policy documents and expert commentaries. Think tanks such as Agora and Bruegel have warned that CBAM's quarterly reporting structure is overly ambitious given the uneven rollout of registries, templates, and emissions calculation protocols (Sartor et al. 2022; Sgaravatti 2024). These sources argue that importers face uncertainty around how to comply with reporting and verification requirements, and that

deadlines risk moving faster than the development of necessary administrative tools and sectoral capacity.

Several opinions issued by the European Economic and Social Committee (EESC) explicitly flagged the lack of transitional support, pointing to poor sequencing between legal milestones and technical facilitation. The EESC noted in particular that smaller firms and non-EU stakeholders faced high adjustment costs because CBAM's operational infrastructure, including the registry and verification processes, had not been adequately piloted or phased in (Barcelo Delgado 2021; Diamantorous 2024).

Media coverage reinforced the perception of premature implementation. An October 2023 Politico article noted that the regulation had gone "live" while key guidance remained incomplete, highlighting growing concern among exporters about being held accountable under CBAM before the necessary technical rules were fully in place (Di Sario and Leali 2023).

Although Sweden's earlier administrative rollout offered firms slightly more runway, even there the burden was significant. Commentary from the Confederation of Swedish Enterprise in late 2024 noted that companies were forced to prepare for emissions tracking while simultaneously adjusting to changes in ETS allowances and export competitiveness frameworks. Norwegian industry actors face even steeper challenges. Due to delayed government follow-up, many importers entered 2025 without clarity on reporting channels, verification authorities, or customs requirements, as no official documentation had been published through public platforms.

This dimension of turbulence reflects the cumulative consequence of misaligned timing. The burden falls disproportionately on firms caught between policy expectations and slow administrative response. CBAM's transitional phase has not offer a pause for calibration, as it began with compliance expectations in place. For industry actors across both cases, this creates uncertainty not just about how to comply, but when they would be given the tools to do so. The result is a form of temporal turbulence translates into practical exposure and reputational risk for private actors expected to lead adaptation before the state, in the Norwegian case, and the EU in the Swedish case, has fully caught up.

4.3.2 Interview Findings

Timing Slippage and Missed Alignment: Norway's Delayed CBAM Rollout

Norway's delayed implementation of CBAM has emerged as a significant point of tension. Although some delay is permitted under the EEA agreement, interviews indicate that the widening gap between EU and Norwegian timelines created uncertainty for both public authorities and industry actors. This was not just a case of falling behind on legal transposition. The delay disrupted planning processes, complicated coordination efforts, and raised doubts about how seriously the regulation was being prioritised. While the document analysis highlights Norway's slow formal alignment, the interviews point to a deeper concern: the delay is experienced as a missed opportunity to engage early and provide clarity when it was most needed.

From the government side, some nuance was introduced. Interview 7 acknowledged that Norway is lagging behind, other EU countries in CBAM implementation, but suggested that this might offer a limited advantage: "We can draw important lessons from EU countries that are ahead of us." At the same time, the respondent admitted the situation creates internal uncertainty: "It becomes a bit challenging because we stand more alone in how we're going to implement it." This framing does not defend the delay, but it reframes it as a potential opportunity to observe how others respond to CBAM's transitional phase before committing to full implementation.

However, this is not a consensus view. Industry actors, particularly those directly affected by the regulation, strongly disagreed with the idea that delay had any strategic upside. Interview 5 described how Norwegian industry had tried and failed to prompt earlier engagement. "We went out very early, together with Confederation of Norwegian Enterprise and The Norwegian Confederation of Trade Unions where we asked the government to develop a position." This took place in the spring or summer of 2023 just months before CBAM's transitional phase began. "We argued then that it would be very important for our companies that we take part in the transitional period. And still nothing happened." The frustration is not simply that Norway was late to join the pilot phase, it is that no clear stance was communicated, despite industry calls for early involvement. Unlike the interpretation offered

in Interview 7, this view sees Norway's lag not as a strategic pause, but as a missed opportunity to support national industries during a crucial adjustment window.

Interview 1, speaking from a ministerial perspective, helps explain the underlying mechanics of this timing gap. "This lag, and the fact that things aren't actually in place here in Norway… That's because something is adopted in the EU, and then there's a job to connect ourselves to it afterwards." The comment reflects how the EEA framework structurally positions Norway to act after the fact. This sequencing is framed as 'routine' and often defended as a norm of the EEA arrangement. However, the interview data suggests that it becomes politically consequential when it affects time-sensitive policies like CBAM, particularly those involving pilot phases, rapid implementation tracks, and industry-facing reporting requirements.

Taken together, these interviews show that temporal complexity under CBAM in Norway is more than matter of a formal delayed process. It is a source of friction that different actors interpret in conflicting ways. Administrative respondents acknowledge the slowness but see a narrow space for observation and adjustment. Industry actors see disengagement at precisely the moment when preparation and positioning mattered most. The turbulence that results is not only about timing but also about missed alignment in expectations, where industry sought clarity and participation, but received silence and deferral.

Unstable Timelines and Asymmetric Pace: Friction from Unclear Sequencing

While Norway's timing challenges generated distinct turbulence, interview material also reveals a different form of temporal complexity within the EU itself. An industry actor in Sweden described CBAM's timeline as moving rapidly in policy terms, but lagging in administrative follow-through. Although the mechanism is progressing according to set milestones, key decisions like the Omnibus regulation remain unresolved. This creates a disjointed situation where companies are expected to comply with a moving policy framework but lack the practical guidance needed to act. The result is a tension between broad support for CBAM's objectives and the strain caused by incomplete sequencing.

Interview 9 expressed support for the mechanism's ambition but emphasised the strain that incomplete sequencing places on companies: "We don't want to postpone CBAM… but some

administrative processes are too burdensome, and that's holding industry back." They also stressed the urgency of locking in outstanding elements: "We just need to get the Omnibus decided." This reflects a core tension that does not appear in the documents. The problem lies in the uncertainty created when some parts of the regulation advance while others remain unresolved.

The interview data complicates any straightforward reading of CBAM's rapid rollout as a success. While political ambition has driven the timeline forward, implementation has not kept pace with the operational demands it places on industry. The resulting turbulence is less about speed than about timing mismatches where regulations moving ahead without the clarity or coordination needed to support compliance. In Norway, what documents present as administrative lag appears in interviews as a source of political and industrial frustration. Within the EU, sequencing gaps limit the ability to plan and adapt. Across both contexts, the challenge lies in the absence of stable, coordinated timelines that enable actors to respond with confidence.

4.3.3 Synthesis

The analysis confirms Hypothesis 3: turbulence under temporal complexity arises when CBAM's rigid rollout outpaces the administrative and industrial capacity to adapt. Documents show how compressed timelines affected both countries, but with important differences. Sweden maintained timely alignment through coordinated administrative action, and no major signs of turbulence were found in national implementation. However, interviews reveal that Swedish industry actors still faced uncertainty due to delayed EU-level guidance and unresolved technical details. In contrast, Norway experienced deeper and more extensive turbulence. National authorities failed to engage the CBAM timeline in a coordinated way, leaving industry without clear procedures, points of contact, or guidance well into 2025. While some officials described this as a manageable delay, industry representatives saw it as a failure of preparation and a lost window for influence. Across both cases, the core source of turbulence lies not in the speed of rollout alone, but in the mismatch between how the EU structures and communicates its policy timelines and how national administrations and industries are expected to absorb and act on them without sufficient coordination or support.

4.4 Norway-EU Relations and Wider Geopolitical Turbulence

This section expands on Hypothesis 4, which proposed that CBAM would generate greater turbulence in Norway than in Sweden due to Norway's position as a non-member in EU climate governance. However, the analysis shows that this dynamic is part of a broader pattern of external turbulence, where turbulence emerges from political and strategic developments beyond the control of implementing actors, rather than from internal coordination failures or policy design.

Unlike turbulence stemming from previously discussed dimensions, pressures examined here are rooted in positioning. Norway must implement CBAM without having helped shape it, while the European Commission, industry actors, and national agencies across Europe must operationalise the mechanism amid geopolitical tensions, trade disputes, and evolving climate diplomacy. These are not challenges that can be resolved through improved coordination or clarified roles. They stem from the need to implement a contested and politically visible policy instrument under conditions shaped by external agendas, strategic realignment, and international scrutiny. What unites these cases is that the source of turbulence lies not in what institutions do, but in what they are exposed to. The following analysis therefore treats Norway's non-member status and the broader geopolitical context as part of the same external field.

4.4.1 Document Findings

Norway's Position as a non-EU Member

The documents suggest that a distinct source of turbulence arises from Norway's position outside the EU. This is not about unclear responsibilities or delayed coordination, as discussed in earlier sections, but about a more fundamental condition: Norway must respond to EU climate instruments like CBAM without participating in their design. While CBAM is not formally part of the EEA, it's functioning still relies on participation from ETS-linked countries like Norway. This creates a situation of political asymmetry, where Norwegian actors are expected to align with a regulation that is already in motion but shaped entirely outside their reach.

The Eldring report (NOU 2024) identifies this as a recurring challenge in Norway's adaptation to EU climate policy. It notes that Norway's approach to instruments like CBAM is often. It notes that Norway's approach to instruments like CBAM is often reactive, shaped by its exclusion from EU trade policy and the pressure to adapt quickly to avoid market disadvantage (243). The report highlights that policies involving economic redistribution or climate-related trade mechanisms tend to create friction in Norway because there is no formal role in shaping them, yet the country remains affected.

This strategic ambiguity is visible across other sources as well. The EEA memorandum from 28 November 2023 (Regjeringen 2023b; 2024a) confirms that CBAM's legal status within the EEA remained unresolved well into the transitional phase. Rather than activating implementation mechanisms, Norwegian authorities were left in a holding pattern, awaiting clarification on whether and how CBAM would apply. This was the result of operating under legal and political uncertainty produced externally. Unlike in Sweden, where CBAM was immediately treated as an instrument requiring national rollout, Norwegian authorities lacked the mandate, or the confidence, to act decisively.

Media coverage reflected this hesitation. A 2023 article in Energi og Klima reported that "Norway will not be part of CBAM when it starts," pointing to the absence of public communication or political explanation (Ask Finansavisen described CBAM's status in Norway as suspended, with legal ambiguity cited as the reason for inaction, even as affected industries began preparing for EU-driven changes (Finansavisen 2023). These accounts underline that the delay was not primarily administrative. It reflected a deeper uncertainty about how to move forward under a policy designed outside the national framework, yet increasingly difficult to ignore.

This form of turbulence is different from the procedural challenges covered earlier. It is not about late planning or confusion between agencies. Instead, it reflects the consequences of being bound to an external regulatory process without a formal role in shaping its direction. Norway had to weigh whether to align with CBAM on the basis of external developments that were already underway. That uncertainty persisted until alignment became functionally necessary to preserve coherence with the EU ETS.

Beyond the Eldring report and a small number of legal notes, few official CBAM-related documents engage directly with Norway's position as a non-member state. The consultation responses, white papers, and bureaucratic publications discussed earlier focus largely on technical implementation, avoiding questions about Norway's political or structural relationship to EU regulation. Industry documents take a similarly cautious approach, and media coverage remains fragmented, often limited to legal or administrative uncertainties. This absence likely reflects the political sensitivity surrounding Norway's alignment with a policy it had no formal role in shaping. In contrast, the academic debate on Norway's non-member status in EU climate governance is well established. Since Norway chose to remain outside the EU and formalised its participation through the EEA framework, scholars have closely examined the political consequences of adopting EU regulations without participating in their formation. This body of work offers valuable insight into the kinds of tensions that CBAM brings to the surface, particularly the challenges of adjusting to binding rules set externally.

Empirical analyses consistently highlight how Norway's non-member status shapes its regulatory environment under CBAM, but they also point to internal dynamics that complicate a purely structural interpretation. Fossum and Graver (2018) demonstrate how the EEA framework creates persistent asymmetries in which Norway must implement EU climate policy without meaningful input, a pattern that mirrors the uncertainty surrounding CBAM. Similarly, Jevnaker's (2020) study of EU–Norway energy relations shows how national institutions must navigate policies shaped primarily for EU conditions, often leading to delayed or reactive adaptation. This resonates with the cautious stance seen in the Eldring report (NOU 2024). However, the picture is not one of automatic constraint. Jevnaker's earlier report for the Fridtjof Nansen Institute (2014) examining Norway's implementation of a range of climate and energy packages underscores that implementation delays frequently result from strategic selectivity, where Norwegian actors engage in "cherry-picking" EU directives based on domestic political feasibility and sectoral resistance (Jevnaker 2014, 24–27). These findings complicate a view of Norway as merely constrained by structure and instead suggest that political will and administrative fragmentation also shape outcomes.

Farstad et al.'s (2024) report for the Center for International Climate Research (CICERO) reinforces this more complex picture. It describes the compound pressure created by

successive EU climate instruments as a "regulatory tsunami" that Norway must absorb without helping to steer, while also highlighting weak inter-ministerial coordination as a domestic factor limiting policy response (Farstad et al. 2024, 2–3). Leiren and Farstad's (2024) comparative analysis of the UK and Norway under the Green Deal confirms that closer alignment with the EU generates heightened turbulence, particularly for non-members like Norway. However, their findings also show that turbulence is not passively absorbed: national systems still exercise agency in how they respond. Norwegian delays in CBAM preparations, then, cannot be read only as structural effects of non-membership. Across these documents, CBAM emerges as a policy that exposes both the political sensitivity of Norway's rule-taking position and the uneven administrative terrain through which EU rules are domesticated. This supports the relevance of the structural hypothesis, while cautioning against over-determining its explanatory power.

Geopolitical and EU-Centric turbulence

In addition to turbulence generated by Norway's non-EU status, the document material reveals how CBAM is embedded in a broader field of political instability shaped by global trade tensions, contested EU priorities, and strategic uncertainty. These are not coordination or implementation challenges but forms of turbulence rooted in shifting international dynamics that affect all actors responsible for delivering the policy.

Parliamentary questions and public debates within the European Union highlight early and unresolved concerns about CBAM's legal defensibility, strategic timing, and geopolitical consequences. Between 2022 and 2024, written questions submitted to the European Parliament raised warnings that the mechanism could breach WTO rules, provoke retaliation from key trading partners, and impose uneven burdens on states during a period of energy and security volatility (Caspary 2022; Oscar and Lizzi 2022; Haider 2024). These uncertainties were not confined to background discussion. A Euronews report from June 2022 documented the postponement of three core Green Deal laws, including CBAM, following breakdowns in parliamentary agreement, described as "chaos" that halted legislative progress (Liboreiro 2022). These disruptions signal turbulence at the EU level that shaped CBAM's trajectory before implementation reached national systems.
Academic and policy documents reflect similar instability. Smith (2023) identifies three competing visions embedded in CBAM's design: climate leadership, regulatory control, and

industrial protection, that remain unresolved. This ambiguity has left the mechanism open to competing interpretations, weakening its coherence and complicating domestic preparation. Wettestad (2023) similarly shows that CBAM was shaped under pressure from both within and beyond the EU, as shifting member state positions combined with external criticism from key trading partners. The chapter underscores how the mechanism's design was shaped by short-term political dynamics rather than lasting consensus, reinforcing its vulnerability to both internal disputes and international backlash.

International documents highlight the extent to which CBAM has triggered concern among trade partners. Cernicky and Lee's (2021) policy brief for the G20 warned that CBAM could fuel protectionist reactions if viewed as an illegitimate trade barrier. This risk has since materialised in concrete cases. A March 2024 article in Politico reported that Ukrainian steel and iron producers feared devastating losses from CBAM's upcoming charges, warning that a carbon levy would undermine their access to the EU market at a time of war and economic fragility (Di Sario 2024). In a separate news report, analysts raised the possibility of escalating trade tensions with the United States and China, describing the situation as a potential "global metals trade war" (Brown 2025). These examples show that CBAM is being delivered in an international environment where its long-term viability depends on how external governments choose to react.

Across all sources, CBAM is depicted not only as a regulatory instrument but as a politically exposed project subject to global and intra-EU turbulence. The documents show that volatility arises not just from technical complexity but from unresolved tensions over trade, legal authority, and climate leadership. National actors implementing the policy, including both EU members and affiliated countries like Norway, are required to operate within an unstable political context that they cannot directly influence.

4.4.2 Interview Findings

No Seat at the Table: Non-Membership, Reputational Risk, and Reactive Governance

While the documents reveal that Norway's non-member status contributes to uncertainty and delay, they also point to selective engagement and fragmented political follow-up. What the interviews add is a more direct assessment of these dynamics. Several respondents acknowledged the weak structural position Norway's non-EU membership has produced in

CBAM's policy space. However, they were also critical of how Norway itself has handled CBAM and related EU climate instruments, describing a lack of coordination, slow mobilisation, and weak political ownership. This was not only seen as a domestic governance issue, but as something that risks damaging Norway's credibility in EU climate cooperation. The interviews suggest that turbulence in implementation carries reputational consequences, particularly when Norway is seen as lagging behind on high-profile initiatives it is expected to align with.

Several interviewees acknowledged that Norway's status as a non-EU member creates structural limitations on its ability to influence CBAM. Interview 6, described this asymmetry bluntly: "The Norwegian state is basically just another lobbyist, like any company or NGO." Others pointed to more nuanced forms of access, but also stressed their limitations. Interview 4, representing an aluminium producing company, explained that some interaction is possible: "We have met with DG TAXUD [the European Commission's Directorate-General for Taxation and Customs Union] several times to talk about design elements of CBAM and how they can be improved." However, they noted that this access does not extend to more influential arenas: "We have less direct contact with the Council… and that's because Norway isn't represented there, so it's harder to gain access." In the absence of formal pathways, companies seek indirect routes. "We are present in most EU member states and through that, we have an entry point to speak about how we think the regulation should be." One encounter made the limits of this strategy clear: "I met an Italian MEP who said the only reason he took the meeting was because we had three factories in Italy… I really believe Norway would have much more influence over the rules we're subject to through the EEA if we were a member." These accounts suggest that EU membership matters in practice. Even Norway's aluminium firms face difficulties securing meaningful input into CBAM decision-making, despite being fully subject to its effects. Influence is possible, but it often depends more on commercial presence than on formal position within the EU system.

Several interviewees suggested that this institutional asymmetry is reinforced by Norway's broader political approach to EU affairs. Interview 6 observed that "EU matters have not been valued highly in the Ministry of Foreign Affairs for the past 15, 16, 17 years… they prefer to work on real foreign policy like peace negotiations. The EEA stuff gets less attention." In a sharper comment, the same respondent added: "The EEA Agreement has

made Norway a bit EU-numb. We sit and take the directives without much debate, and both bureaucrats and politicians dislike discussing EU affairs. The level of knowledge is catastrophically low, and it almost seems like a deliberate political strategy." These remarks point to more than structural constraint: they suggest a cultivated political distance from EU policymaking, where engagement is minimised rather than negotiated. Interview 5 echoed this when reflecting on the government's delay in responding to CBAM: "We think they're far too slow, the government should have made a decision long ago but that's the Centre Party's fault, not the administration." Here, non-alignment is not just a product of exclusion from EU institutions, but also of domestic political dynamics. The interviews suggest that Norway's limited role in EU decision-making is compounded by a longstanding reluctance to politicise EU issues, and that this distancing may inhibit timely and strategic alignment with major climate instruments like CBAM.

This distance also has reputational consequences. Interview 6 explained: "We want to be part of more, but we only pick what we find interesting. And that clearly annoys some EU countries." They added: "Norway is increasingly seen as a climate laggard in the EU. We're cutting fewer emissions… and we've made enormous profits on gas. We also weren't among the fastest to put money on the table for Ukraine. That combination of looking like a laggard and holding onto billions before helping gives Norway a poor image." This assessment came from a Brussels-based actor with direct access to how Norway is perceived inside EU institutions. The quote points to a deeper discomfort. Norway's approach may seem pragmatic at home, but externally it signals avoidance. The combination of rule alignment without visible initiative is noticed, and it weakens Norway's position at a time when credibility matters.

Interview 5 reinforced this concern. Speaking from the same Brussels setting, the respondent warned that hesitation around EU climate policies risks eroding Norway's standing. "People start to question whether Norway is actually participating in the green transition through common European rules… If we keep saying no to the renewables directive, energy efficiency, and carbon leakage regulation… people will wonder. There's concern about what this means for market access and participation in areas important to Norway and industry… We risk not being seen as European anymore. And then our industry is in real trouble." These comments reflect more than frustration. They point to reputational turbulence that carries

long-term consequences. What is at stake is not just influence over CBAM, but the broader capacity to remain integrated in EU policy spaces where Norway's economic and climate interests are directly shaped. The interviews highlight that this is not a future risk. It is already visible to those engaging in Brussels on Norway's behalf.

Together, the interviews suggest that Norway's turbulence under CBAM is partly a structural outcome of its non-EU status, but also of how national authorities have responded to that position. The accounts reveal that exclusion from decision-making limits influence, but that reputational costs arise when this exclusion is paired with inaction or delay. What emerges is a pattern of reactive governance that risks diminishing Norway's climate credibility and undermining its role in EU policy processes.

Geopolitical and External Turbulence

The documents show that CBAM developed under political pressure and contested legitimacy, both within the EU and in its external relations. The interviews reinforce this and further reveal how CBAM is delivered and interpreted within a broader geopolitical climate marked by war, inflation, trade disputes, and rising climate ambition. Several respondents described how CBAM is being pulled into larger strategic debates that shape its reception and perceived legitimacy.

Several interviewees emphasised that the political consensus underpinning CBAM is no longer as stable as it was when the instrument was introduced. Where CBAM was initially supported across a wide swath of climate-friendly parties, actors now point to growing resistance under electoral pressure. Interview 3 noted that "there was this paper from the EPP (European's People Party) suggesting a two-year delay of CBAM," framing this as part of a broader reorientation inside the European Parliament. "Even those political groups that were more climate friendly are kind of shifting towards a more climate cautious approach." That the EPP, a long-standing supporter of the European Green Deal, is now questioning CBAM's timeline signals a significant political shift. What began as a consensus-based climate tool is becoming more contested, with support softening even within its original parliamentary base.

Interview 8 pointed to similar developments in Sweden: "The Swedish Democrats, the far right, are much more critical towards the green agenda in general… They say the EU has

gone too far, too quickly, with the green agenda." While CBAM has not been singled out, the implication is clear, that it could become a target as the political climate hardens. Interview 5 captured the broader trend: "This [CBAM]... has now become part of a broader political development... there's a backlash against this... the political spectrum has shifted to the right and there's much more focus on competitiveness and concern about deindustrialisation in Europe." Together, these reflections point to a shifting political context in which CBAM, once a flagship of climate ambition, may now face greater resistance and reduced room for adjustment.

In addition to electoral volatility, interviewees also highlighted CBAM's exposure to geopolitical events and global trade tensions. These developments lie far outside the authority of implementing agencies, yet they shape how the mechanism is understood and whether it will be seen as legitimate or provocative.

Interview 1 pointed to a shifting policy balance: "At the same time, there's a new geopolitical situation... a lot of instability... funding has gone to defence, necessarily to rearmament and the defence industry. Security policy has become much more important. The question is whether we'll be able to maintain the same level of activity and effort on climate." CBAM, though designed as a climate instrument, now competes for political space with war, energy insecurity, and industrial resilience. Interview 8 was more direct: "Trade was supposed to be an instrument to serve the climate transition. That's not the case today... Today, security trumps everything, it trumps economics and it trumps climate." The same respondent reflected that CBAM's future expansion now depends on how well it fits this security narrative: "If people view expanding CBAM as something that will also bolster our security, then CBAM will be expanded. If they feel it will weaken it, then it will not."

Such remarks suggest that the changing political landscape in which CBAM exists on has the power to alter how it is produced and perceived. CBAM is no longer interpreted as a technical regulation. It is seen as a strategic signal one that could strengthen or destabilise the EU's geopolitical position. Norwegian authorities echoed this awareness. Interview 7 noted that rapid geopolitical shifts require active monitoring: "Changes can happen quickly, maybe faster than what we've seen in other areas. It's not our role to intervene in these trade policy discussions and speculations, but at the same time, we have to be prepared and keep an eye

on things." This reflects a broader dilemma CBAM must be implemented by national authorities who have no role in setting its strategic course, but who are nonetheless exposed to its consequences.

Technological Readiness is a Structural Constraint Beyond Regulatory Control

A final theme raised in the interviews, though largely absent from the document material, concerns the structural role of technology in shaping CBAM's long-term effects. Multiple respondents emphasised that even with political will and regulatory clarity, decarbonisation outcomes depend on technological readiness across industry. This is not something that can be guaranteed through legislation. It requires infrastructure, innovation, and investment trajectories that lie partly outside the control of public authorities. For many actors, this introduces an additional source of turbulence that is neither political nor administrative, but material and systemic.

Interview 9 raised concerns about the gap between political ambition and material readiness: "The technology changes in the EU will be able to eliminate the emissions very fast, for this we need a lot of electricity, which we don't see coming." This comment highlights a key tension: CBAM is based on the logic that emissions can be reduced through price signals. But if the infrastructure for decarbonisation is absent, price incentives alone may not be enough to drive change.

Interview 11 offered a more optimistic case, but still one that reinforces the point. The respondent explained how SSAB, a Swedish steel company, made a strategic decision to move away from blast furnaces and invest in fossil-free hydrogen-based production. Crucially, this happened in 2016 , "almost 10 years ago... there was no Green Deal." The decision was prompted not by regulation but by the end-of-life of existing furnaces and the long-term cost of reinvesting in carbon-intensive infrastructure. "What happened on the way to the final investment decision was that we got a lot of demand... so later the board decided to speed up the investment schedule" This example shows that industrial transformation can happen without regulatory push, but also that it depends on timelines, infrastructure, and market pressure, not just policy. CBAM may aim to steer decarbonisation, but its success relies on technologies and investment conditions that governments do not fully control.

4.4.3 Synthesis

The findings complicate Hypothesis 4 by showing that Norway's position outside the EU does contribute to turbulence, but not in isolation. The EEA framework limits Norway's ability to shape instruments like CBAM, and this lack of influence creates clear policy friction. However, the turbulence is also intensified by how Norwegian actors handle this position. EU climate legislation remains poorly politicised in Norway, and EEA matters are consistently deprioritised. This has produced consequences in Brussels, where Norway is increasingly seen as passive or disengaged, despite being bound to align. The interviews reveal that this has reputational costs and limits Norway's room for manoeuvre in current and future climate governance. In parallel, the findings show that geopolitical events intra-EU political shifts, and uneven technological readiness have created a wider field of external turbulence. CBAM is being implemented in a landscape shaped by trade tensions, war, and political realignment across Europe. This thesis did not initially account for the scale or impact of these geopolitical dynamics, but the material shows that they play a significant role. External turbulence is not only present in Norway's non-membership status. It compounds all the dimensions explored in the thesis, reinforcing and distorting the turbulence identified under shifting parameters, intercurrence, and temporal complexity.

Chapter 5: Discussion

CBAM was not designed to cause turbulence, but it has revealed just how vulnerable even high-capacity systems can be to regulatory disruption. As this thesis has shown, the mechanism interacts unevenly with national institutions, industrial structures, and political environments, often in ways that amplify rather than reduce uncertainty. By comparing Norway and Sweden, the analysis traces how turbulence takes shape not only through policy design, but also through the administrative and strategic choices made during implementation. The following sections unpack these dynamics along the three turbulence dimensions: shifting parameters, intercurrence, and temporal complexity, before returning to the structural implications of Norway's non-EU status and wider geopolitical and external pressures.

5.1 Responsibility Without Routine: Governance under Shifting parameters

CBAM entered before national systems were ready to carry it. Governments were told to reorganise internal responsibilities and coordinate across sectors that rarely work together. Customs, environment, and finance authorities were drawn into new tasks, often without clear instruction. The Commission's guidance kept evolving, and yet national actors were expected to start building procedures. That expectation created initial turbulence, but the deeper disruption came from how governments responded while procedures remained unsettled.

CBAM's early demands forced governments to reorganise how their institutions worked. National authorities were instructed to establish importer accounts in the EU's central registry, approve third-party emissions verifiers, and oversee customs procedures tied to embedded carbon values. These requirements did not match existing administrative routines. In Sweden, the government assigned these tasks to the Environmental Protection Agency, which began producing templates and importer guidance in the first half of 2023. But even this effort did not meet the expectations of industry. Industry actors reported that guidance arrived too late and lacked the detail they needed to adjust internal systems. Early designation helped define responsibility, but it did not resolve the disconnect between government timelines and business needs. Coordination across sectors began, but companies were still left trying to interpret a moving target with limited support.

In Norway, the absence of early designation had deeper consequences. While Sweden built coordination around a clear lead agency, Norway allowed responsibility to drift. Ministries watched and waited, uncertain who would act first. There was no clear mobilisation across customs, climate, or finance, and no interim system to guide affected actors. The question of EEA relevance became a reason to postpone rather than prepare. Even as expectations accumulated, administrative routines remained undeveloped. This was not just a slower version of the Swedish response. It reflected a pattern where engagement is delayed until formal obligation leaves no room for discretion. That choice shaped how turbulence took hold. Industry actors were left without guidance, coordination came late, and the early phase passed without shared direction. However, with the Environment Agency now formally designated as national competent authority, there is scope for greater clarity and alignment. If that role is taken seriously, turbulence may ease over time, just as it began to settle in Sweden once responsibility was anchored and communication became more predictable.

These findings confirm the first hypothesis, but also complicate it. CBAM did reconfigure institutional roles and destabilise established routines. But turbulence was not only a response to unclear design. It was shaped by how each state understands its relationship to EU regulation. Shifting parameters brought this difference into focus. Sweden interpreted early ambiguity as a call to prepare. Norway interpreted it as a reason to wait. This suggests that turbulence under shifting parameters is not only a matter of capacity or coordination, but of political judgement. The question is not whether governments are capable of adaptation. It is whether they are prepared to assume responsibility while the rules are still unfolding. The evidence here shows that they have to. EU climate policy is accelerating, and delays in national response create consequences that are difficult to undo. As pressure mounts from both climate targets and the risk of losing industrial competitiveness, the space for hesitation is shrinking. Governments that wait for full certainty before acting risk falling behind, as Norway's experience under CBAM makes clear. There is no time for delay, especially not the kind created by unclear mandates and a political reluctance to engage before the pressure becomes unavoidable.

This matters for climate governance well beyond CBAM. Policies are moving faster than national systems are set up to absorb, and implementation often begins before roles, tools, and procedures are in place. The findings here show that timely response is not guaranteed. It

depends on whether governments are willing to engage before full certainty exists. Shifting parameters bring this tension to the surface. They show how climate policy enters political systems that are cautious, fragmented, and still negotiating their own position. The turbulence that follows is not incidental. It grows where early action is avoided and where leadership is withheld until rules can no longer be ignored.

5.2 Intercurrence: Where Policies Collide

Turbulence under intercurrence comes from more than overlapping responsibilities. It happens when one policy is placed on top of another without resolving the contradictions between them. CBAM was added to a regulatory landscape shaped by the EU ETS, long-standing industrial policy, and national trade frameworks. These systems were not designed to work together. The result was not just technical confusion, but pressure to choose between competing goals: emissions reduction, industrial competitiveness, trade fairness, and legal defensibility. CBAM triggered turbulence because it required governments and industries to act before these choices had been settled.

This was especially clear in the aluminium and steel sectors. CBAM created new obligations without replacing old ones. Exporters still faced phase-out of free ETS allowances, but had no protection from foreign markets. Producers had to calculate embedded emissions in ways that did not match existing accounting systems. The scrap loophole and exclusion of indirect emissions created obvious gaps. These design flaws made the regulation harder to apply, but also easier to challenge. Norwegian industry actors argued that CBAM undermined low-carbon production, punished exporters, and distorted competition. Swedish actors, while less confrontational, also pointed to weaknesses and asked for corrections. Ministries and agencies in both countries struggled to interpret how CBAM should relate to existing frameworks, especially since the EU had not fully clarified its long-term structure.

Much of the turbulence came from the fact that CBAM was never introduced as a single-purpose instrument. Some actors saw it as climate policy. Others saw it as a trade defence tool or a way to reduce carbon leakage. Still others treated it as part of Europe's industrial strategy. These different interpretations shaped how the regulation was understood, criticised, and defended. Evidence showed that industry actors worried about how a lack of competitiveness caused by such design issues could reduce climate outcomes, while NGOs

questioned whether CBAM's coverage was broad or strict enough. Some government officials focused on fairness across sectors, others on legal risk under WTO rules. The lack of shared understanding about what CBAM was meant to achieve became a source of friction in itself. Implementation did not begin with a common goal, instead it began with competing assumptions.

Everyone had to plan, and still has to plan, while the purpose of the regulation remains unsettled. This uncertainty is compounded by how complex the regulation has become. CBAM is dense, fragmented, and technically demanding. Even experienced actors struggled to track changes, interpret guidance, and prepare internal systems. The regulation's structure is difficult to explain and even harder to implement. This is not just a communication problem. The design itself still contains contradictions, and the Commission has not yet resolved them. Key gaps, such as the treatment of scrap, indirect emissions, and reporting overlaps, were not addressed in the Omnibus regulation. This silence has made it harder to stabilise expectations. These issues require urgent attention. Without clear resolution, turbulence will persist, and the legitimacy of the mechanism will continue to be questioned.

This confirms the second hypothesis, which proposed that CBAM would produce turbulence by layering new rules onto unresolved frameworks. The turbulence was not only a by-product of technical misalignment. It emerged because the regulation forced governments and industries to respond to a system that had not yet decided what kind of instrument it was. Implementation started before consensus had been built. Rules were in place, but the rationale behind them shifted depending on who was interpreting them. In that context, actors were asked to act while the ground beneath them was still moving.

Intercurrence reveals how fragile regulatory implementation becomes when political clarity is missing. CBAM's complexity was not only about how it worked. It was about what it meant, and that meaning changed across time, sector, and actor. This kind of turbulence cannot be addressed through better coordination alone. New instruments need more than procedural alignment. They need a clear and coherent logic that actors can prepare for, engage with, and respond to. CBAM did not offer that in its early stages. The result was a system that produced uncertainty not only through what it demanded, but through what it failed to resolve.

5.3 Temporal Complexity: When Regulation Outpaces Readiness

Turbulence under temporal complexity appears when the timeline of a policy does not match the pace at which institutions and industries can adapt. CBAM was introduced on a rigid and compressed schedule. The EU framed this acceleration as a deliberate political choice, linking speed to credibility, climate leadership, and global positioning. Timelines were policy signals as much as administrative markers. But this tempo came with consequences. National authorities had limited time to assign roles, develop infrastructure, and communicate expectations. Sectors were told to prepare before they understood what preparation required. The turbulence that followed was not just about pace. It came from the demand to act before the systems, support structures, or regulatory details were in place.

Sweden and Norway responded to this tempo in different ways. Sweden moved early, assigning responsibility and beginning guidance work during the transitional phase. This timing positioned its agencies closer to the EU's rollout. But even here, turbulence surfaced. Evidence shows that industry actors remained unsatisfied with the information they were provided in the early stages. Early engagement did not guarantee smooth implementation. It meant working under pressure with no time to adjust. Norway, by contrast, distanced itself from the timeline. Ministries delayed coordination and left core questions unanswered well into 2025. This created a different kind of turbulence. Instead of trying to adapt under pressure, Norwegian institutions created a vacuum that pushed responsibility downward without clarity. The absence of direction reinforced the view that CBAM was being treated as an administrative formality, not a political priority.

Like the findings under shifting parameters, this section shows how temporal complexity is tied to political prioritisation. Administrative timelines are not neutral. They reflect how seriously a government takes its role in shaping and delivering climate policy. In Sweden, early engagement signalled a decision to treat CBAM as something worth preparing for, even without complete information. In Norway, the delay was not due to lack of awareness. It was the product of political choices that left climate governance in the background. This stands in sharp contrast to Norway's entry into the EU ETS in 2008, where alignment with the EU's timeline was treated as a strategic goal. Institutions moved quickly because political leadership made it clear that timing mattered. No such message accompanied CBAM.

Agencies were left without coordination, and no structure was built to meet the EU's pace. The turbulence that followed was not caused by timing alone, but by the failure to act on it.

For industry actors, this was one of the most difficult aspects of the CBAM rollout. Aluminium and steel producers faced immediate demands without stable guidance. Norwegian stakeholders described repeated efforts to prompt government response, with little success. Swedish actors reported slightly better support but still pointed to gaps in information and timing. One interviewee made clear that the issue was never about wanting to delay the regulation. The problem was being expected to act while key elements, such as the Omnibus regulation, remained unresolved. Without clarification, timelines felt premature. These problems did not stem from resistance to CBAM. They reflected a deeper difficulty: how to respond to a regulation that moved ahead of the structures needed to carry it.

These findings confirm the third hypothesis. CBAM produced turbulence because its rollout timeline demanded action before systems were ready. But the analysis goes further. It shows how climate policy timelines create friction not only through speed, but through ambiguity, power, and control. When action is required without sequencing, when regulation advances without closure, and when national actors must absorb supranational expectations without tools to do so, turbulence becomes built into the process. This is what industry actors described. Not opposition. Not delay. Just the difficulty of complying with a regulation that was still taking shape. CBAM's schedule was a political signal. But signals without structure create uncertainty. Temporal complexity is not a passing coordination problem, it is a structural challenge in how fast, and on whose terms, climate governance moves.

5.4 Norway's Position Outside the EU: External Turbulence and Limited Influence

Norway's position outside the EU is often treated as a structural source of turbulence. As a non-member bound by the EEA, Norway must implement EU climate legislation without participating in its design. CBAM exemplifies this asymmetry. Decisions about scope, timelines, and compliance were made externally, while Norway was expected to deliver on them with limited preparation and no formal role in shaping the process. In this sense, the country's exclusion is not incidental, it is a governance condition that complicates alignment and increases the likelihood of turbulence.

Yet this exclusion does not tell the full story. While structural constraints made early action more difficult, many of the delays and gaps observed in Norway's CBAM response were self-inflicted. The legal ambiguity surrounding CBAM's status under the EEA persisted well into the transitional phase, but this alone cannot explain the lack of administrative initiative. Ministries hesitated to assign responsibility, not simply because of unclear legal obligations, but because CBAM was not treated as politically urgent. Despite calls from industry for early alignment, Norwegian authorities failed to prioritise the mechanism. CBAM was not framed as a strategic policy issue, but rather as a foreign imposition, and this perception shaped how ministries responded.

Interview material and public records suggest that political will played a decisive role in this disengagement. The Centre Party, a longstanding sceptic of EU influence, was identified by as obstructing stronger inter-ministerial coordination. But this dynamic is not unique to the current administration or to CBAM alone. Norway has repeatedly downplayed or delayed engagement with politically sensitive EU policies, contributing to its informal reputation for 'EEA lag'. What makes this especially problematic is that the pattern is selective. This reveals not just inconsistency, but active political filtering of which EU policies are treated as urgent.

This selectivity has reputational consequences. As Norway's climate commitments become increasingly entangled with EU legislation, uneven engagement risks undermining credibility with both European partners and domestic stakeholders. While non-membership formally limits influence, the way Norway navigates its obligations reveals an additional layer of turbulence rooted in inconsistent prioritisation, siloed administration, and fragile political consensus on EU climate alignment. These are not just symptoms of structural exclusion; they are features of domestic governance.

These dynamics are unlikely to remain limited to CBAM. EU climate instruments now intersect more directly with trade, industrial policy, and national investment frameworks, and their political salience will only grow. In Norway, this creates a particular challenge. EU scepticism remains entrenched in the party system. Alongside the Centre Party, the Socialist Left Party (SV), the Red Party (Rødt), and the Progress Party (FrP) have all expressed strong reservations about EU integration. These positions extend beyond the opposition benches and

continue to shape how climate instruments are framed and handled across government. Non-membership remains a valid political choice, rooted in past referenda and national preference. But when that choice becomes a polarised terrain in itself, it undermines Norway's capacity to absorb policies it has already committed to implementing. If turbulence under CBAM is any indication, Norway will need to sharpen its domestic coordination and clarify its strategic stance toward EU climate regulation. Otherwise, new instruments will continue to expose the political costs of an ambiguous and reactive approach.

In this light, the notion of external turbulence requires refinement. Norway's experience shows that exclusion alone does not produce turbulence; it becomes disruptive when paired with weak political ownership and fragmented follow-through. At the same time, a broader layer of external turbulence affects all actors, not just non-member states. CBAM's implementation has unfolded amid heightened geopolitical volatility, including the war in Ukraine, EU–US trade tensions, and growing pressure on the technological systems needed to support decarbonisation. These conditions shape the reception of climate instruments across Europe. Within the EU, political shifts such as the rightward movement of the European Parliament have added further uncertainty around the direction and stability of climate policy. These factors do not cause CBAM-related turbulence on their own, but they deepen its effects and limit the ability of institutions to respond with clarity and coordination. This was evident in Sweden as well, where turbulence emerged despite full membership and early administrative engagement.

This perspective invites a more complete understanding of turbulence. It is not only produced by the internal dynamics captured in the three dimensions, but also shaped by external conditions that set the stage for how policies like CBAM are received. Hypothesis 4 is partially confirmed. Norway's position outside the EU did create specific challenges, but turbulence intensified through a lack of political direction, unclear responsibility, and delayed coordination at the domestic level. Crucially, the findings show that turbulence is not limited to states on the margins. It emerges through the combined effect of policy complexity, compressed timelines, overlapping systems, and uneven capacity across all actors involved. CBAM exposed these frictions, and as climate policy becomes more far-reaching, similar disruptions are likely to follow

5.5 Turbulence as a Feature, not a Flaw: Rethinking Implementation under Turbulence

The analysis in this thesis shows that turbulence was never incidental to CBAM's rollout. It emerged from the interplay between an ambitious policy design, incomplete regulatory scaffolding, and uneven responses from national systems. CBAM introduced new administrative roles, demanded coordination across sectors, and moved ahead on a fixed timeline while core rules, definitions, and technical infrastructure remained under development. But these pressures did not originate from the EU alone. Turbulence developed through the combined effect of how the policy was constructed and how national actors chose, or failed, to engage with it. While the EU set the terms and tempo, national systems were responsible for interpreting, adapting, and implementing those terms. The results varied. What CBAM revealed was not a single point of failure but a multi-layered challenge: one that depended as much on political will and sustained administrative action as on policy clarity or regulatory design.

Turbulence, as applied in this thesis, captures more than just disruption. It describes a condition where competing demands, evolving rules, and uncertain capacities interact in ways that resist coordination. What makes turbulence analytically useful is that it does not point to a single source of breakdown, but to a situation shaped by multiple, overlapping pressures. CBAM brought these pressures into view. It was not simply that the policy moved quickly or introduced technical complexity. Turbulence emerged through the dynamic between a regulation still taking shape and governance systems struggling to interpret, prioritise, and absorb it. It was produced in motion, between design and implementation, between ambition and administrative constraint, between expectation and response. In this sense, turbulence offers more than a label for poorly implemented policies. It helps explain how climate governance unfolds under pressure, and why even high-capacity systems encounter friction when roles, rules, and responsibilities shift at once.

In Norway, the most significant barrier was the absence of political commitment. Administrative capacity existed, but it was not mobilised. CBAM was not treated as a priority, and this delayed decisions, fragmented responsibility, and left agencies without clear guidance. Structural constraints as a non-EU member added uncertainty, but they did not prevent early engagement. What mattered was that no strong political signal was given to act. In Sweden, that signal was present. Authorities moved early, took ownership, and attempted

to align national systems with EU expectations. Yet turbulence still emerged. Swedish actors faced ambiguous instructions from Brussels, conflicting pressures between national and EU frameworks, and sectoral tensions over timelines and reporting Crucially, this occurred despite strong administrative capacity and formal inclusion in the policymaking process. Sweden's experience shows that turbulence is not only a problem of weak governance or rule-taking status. It arises from the way ambitious climate policies intersect with complex systems and competing demands. This reinforces a core argument of the thesis: turbulence is not a sign of failure at any one level, but the outcome of interaction between policy design, political will, and administrative response.

Each of the three turbulence dimensions reveals how CBAM placed new and uneven demands on governance systems. Under shifting parameters, CBAM assigned complex tasks that cut across climate, customs, and trade, challenging established divisions of responsibility. No single body could manage them alone, pushing national authorities to coordinate quickly and develop new routines under time pressure. Intercurrence emerged as CBAM was layered onto existing climate and trade frameworks without resolving how the new and old systems would interact. This produced friction between parallel instruments, especially where responsibilities overlapped or contradicted one another. Design flaws in CBAM, including the scrap loophole in aluminium, the ambiguous treatment of exports, the unclear timeline for phasing out free allowances, and the exclusion of indirect emissions, compounded these tensions. Rather than forming a coherent structure, these elements pulled actors in different directions, creating uncertainty across ministries, industries, and compliance systems. Alongside these dynamics, temporal complexity disrupted the pace at which systems could adapt. CBAM advanced on a fixed timeline, while key rules, tools, and responsibilities were still evolving. National actors had to begin implementation before the policy was fully defined. This made coordination difficult and planning uncertain. Together, these forms of turbulence made CBAM difficult to internalise. It required immediate action across fragmented systems, without the stability usually needed for coherent implementation.

These outcomes are not signs of failure. The turbulence identified in this thesis reflects what happens when climate policy expands its reach while both policy design and implementation systems are still taking shape. CBAM is highly ambitious, the first of its kind, and deliberately disruptive. It ais to transform how emissions are priced at the border, prevent

carbon leakage, and embed decarbonisation in trade regulation. These are complex and long-term goals, and the policy is still in its early transition phase. The fact that turbulence emerges does not mean those goals are unachievable. But ambition alone does not guarantee effective implementation. What matters is how policies are constructed, how they are received and interpreted by national actors, and how effectively those actors are supported in turning broad objectives into operational reality.

The findings challenge the idea that turbulence is unavoidable or purely a symptom of ambition. It is not inevitable, and it can be mitigated. But doing so requires more than minor technical adjustments. Turbulence arises when policy design, governance structures, political priorities, and external developments collide in ways that outpace coordination. Managing it demands proactive effort, from the EU in crafting implementable policies, from national administrations in preparing for and prioritising change, and from industries in adapting to new expectations. CBAM's turbulence has revealed the stress points in this process. But it also shows that navigating these challenges is not a side concern, it is now central to the success of climate governance. Recognising turbulence as part of the political and administrative landscape is the first step toward building systems resilient enough to absorb it.

5.6 Limitations and Implications for Future Research

While this thesis offers a detailed account of how CBAM generates turbulence in Norway and Sweden, its findings must be read in light of several important limitations. These are not only methodological boundaries, as discussed earlier, but also wider conditions that shape how far the insights can travel. Understanding these limitations is essential to interpreting the results with appropriate caution and identifying where further research could sharpen, extend, or challenge the conclusions drawn here.

First, there are conceptual boundaries around the use of turbulence as an analytical lens. The framework applied in this thesis draws on Ansell and Trondal's definition, which captures turbulence as a condition of tension and uncertainty driven by multidirectional and often conflicting pressures. This framework has been useful in identifying patterns of disruption across administrative systems, but it does not explain all forms of policy difficulty. Turbulence is a dynamic concept that intersects with broader challenges of coordination,

political commitment, and regulatory design. It offers a structured way to interpret tension and uncertainty, but it does not operate as a standalone theory of implementation or failure.

Secondly, limitations are linked to the case design. Norway and Sweden were chosen for their contrasting roles and relevance to CBAM. Norway is a non-EU country with full ETS participation but limited upstream influence. Sweden is a member state with high administrative capacity and early engagement. These cases offered a meaningful comparison, but they do not reflect the full range of experiences across the EU or EU aligned countries. Both countries have strong bureaucratic traditions and well-developed climate policy frameworks. Smaller states, countries with fragmented governance, or those with more politicised responses to CBAM may show different forms of turbulence that fall outside the scope of this thesis.

Quantitative data could have complemented these findings, especially in mapping the distribution of effort, coordination between agencies, or the extent to which systems were prepared to implement CBAM requirements over time. However, because CBAM is still in transition and many administrative indicators are either unavailable or unreliably coded, a structured dataset of this kind could not be developed within the timeframe of the study. Future research might incorporate survey data, registry metrics, or implementation timelines to provide a more systematic view of how turbulence unfolds across different administrative and organisational settings.

Finally, as with all qualitative research, the analysis is interpretive. It reflects how actors involved in CBAM perceived and navigated turbulence in their roles. The interview data captures perspectives from public bodies, sectoral concerns, and strategic framings, but it is not intended to offer a full behavioural account. The study does not claim to offer a comprehensive model of turbulence. It aims instead to trace how turbulence was generated, experienced, and managed under the specific conditions created by CBAM's rollout.

These limitations also point to promising directions for future work. As CBAM moves into its enforcement phase, new questions will emerge about compliance behaviour, legal challenges, and cross-border coordination. Comparative studies could be expanded to include additional non-EU states or newer EU member states with different administrative profiles.

There is also a need for more empirical work on how actors interpret the legitimacy and coherence of CBAM as it evolves, particularly in response to geopolitical shifts and industrial feedback. Most importantly, future research should continue to explore turbulence not only as a short-term disruption, but as a condition that reveals how climate governance operates when institutions are asked to change under pressure.

Chapter 6: Conclusion

This thesis set out to understand how CBAM generates turbulence as well as how this affects countries with different relationships to the EU. It focused on Norway and Sweden, two high-capacity states aligned with EU climate goals, but positioned on opposite sides of the membership boundary. The aim was to explore not only where and how turbulence materialises under CBAM, and how this shapes the capacity to absorb and respond to policy pressure.

Across all three turbulence dimensions, shifting parameters, intercurrence, and temporal complexity, CBAM was found to create disruption. It demanded new administrative roles and reporting practices (shifting parameters), introduced conflicting policy logics and design flaws that unsettled previous arrangements (intercurrence), and moved on a timeline that rarely aligned with national preparedness (temporal complexity). These pressures were not evenly distributed. Sweden's early mobilisation, driven by anticipatory coordination and political alignment with the EU, helped mitigate some challenges, though it did not eliminate them. Norway, by contrast, faced more severe turbulence, partly due to its non-member status, but also because of limited political prioritisation, fragmented responsibility, and weak coordination across public authorities. Importantly, turbulence was not just imported from Brussels. It was also domestically produced, especially when national actors failed to coordinate or prioritise adaptation early enough. In both countries, broader geopolitical instability and evolving EU rules added a backdrop of external turbulence, sharpening the sense of flux.

The findings partially confirmed the original hypotheses. Each turbulence dimension was clearly identifiable in both cases, though often in different forms. Shifting parameters emerged through unclear responsibilities and unsettled expectations; intercurrence through the clash between CBAM and the fading ETS logic; and temporal complexity in the gap between political timelines and practical readiness. Hypothesis 4, which questioned if Norway would experience more pronounced turbulence due to its non-EU status was supported, but with important caveats. While structural exclusion clearly constrained Norway's anticipatory capacity, many of the frictions observed were not inevitable. Delays, weak signalling, and administrative ambiguity amplified turbulence. In this sense, Norway's experience was shaped as much by domestic political choices as by EU structural constraints.

This thesis contributes to the turbulence literature by applying the concept to a single policy instrument in a comparative, sector-specific setting. It expands on Leiren and Farstad's work by showing that turbulence does not only arise from broad policy packages or legal misalignment but also becomes visible in the cumulative burden of a single policy when technical rules introduced during transitional phases expose gaps in coordination, capacity, and clarity. It also nuances their findings by showing that EU membership, while helpful, does not inoculate countries against turbulence. Sweden's experience suggests that turbulence may shift form under EU membership, but it does not disappear. This study also adds to the literature on rule-taking, illustrating how political will and administrative norms shape how countries adopt external rules shape the experience of non-membership. In Norway's case, the CBAM episode exposes the limits of adaptive capacity when upstream engagement is absent and downstream coordination is uneven. Finally, the thesis contributes to the industrial decarbonisation literature by demonstrating that disruption is not only driven by market or technological constraints but also by mismatches between policy design and institutional capacity. Even sectors that are technically prepared and politically supportive, like aluminium and steel, encounter turbulence when regulatory instruments introduce new obligations without clear administrative pathways, sufficient lead time, or alignment with existing compliance routines. While these sectors are often labelled hard-to-abate, this study shows that turbulence often stems from how policy is structured and sequenced, not just from the sectors themselves.

More broadly, the findings speak to current challenges in EU climate governance. As the EU introduces increasingly complex and interdependent policies, the risk grows that implementation will outpace the capacity of national actors to respond effectively. CBAM is a textbook example of fast policy: designed ambitiously, rolled out quickly, and expected to function smoothly across a diverse set of national systems. Yet turbulence under CBAM reveals the limits of this model. Misalignment between EU timelines and national readiness is not a procedural glitch, it is a governance pattern. For non-members like Norway, this pattern is compounded by structural exclusion, but the case of Sweden shows that even full participation does not guarantee clarity, legitimacy, or coherence.

Still, turbulence is not the same as failure. This thesis argues that turbulence is a defining feature of climate governance under acceleration. The question is not how to avoid it entirely, but how to manage it constructively. Several lessons emerge. First, the EU must improve regulatory sequencing and procedural transparency. Instruments like the Omnibus regulation are helpful, but more is needed. Key design flaws, such as the exclusion of indirect emissions, the absence of an export adjustment mechanism, the unresolved phase-out of free allowances, and the loophole for recycled aluminium, have created uncertainty not only for producers but also for the national authorities tasked with implementation. These issues must be addressed if CBAM is to function as intended. Clarifying these elements and supporting their operationalisation across member and non-member states is essential to reduce turbulence and uphold the policy's legitimacy.

Second, national governments must take a more anticipatory stance. Norway's challenge is not just legal, it is political. Better coordination, clearer ownership, and stronger prioritisation are needed to absorb complex EU climate law. Sweden, while ahead, also shows the risks of relying too heavily on discursive leadership without consistent administrative follow-through. Third, industry actors must continue to pressure policy refinement, but also build clearer internal consensus. Their early support for CBAM was crucial, but fragmented positions on scope, exports, and implementation risk weakening their influence when it matters most.

These recommendations are not exhaustive, but they point to one conclusion: CBAM is not beyond repair. It is still in its transitional phase, and many of its structural tensions can be addressed, if governments and actors act quickly. The window for doing so is narrow. Full implementation begins in 2026. Unless key issues are resolved, CBAM risks reproducing the very uncertainty it was meant to overcome.

This study has several limitations. It focuses on two cases, within one phase of CBAM's rollout. The qualitative design limits generalisability, and the findings reflect an evolving policy landscape. Future research should track the enforcement phase post-2026, expand to other sectors and countries, and explore how turbulence interacts with geopolitical shifts, legal challenges, and carbon market dynamics.

Yet within these limits, the study offers something new. It is the first to apply turbulence theory to CBAM, to compare member and non-member state experiences in real time, and to centre sectoral actors in that analysis. In doing so, it helps reframe CBAM not just as a technical instrument, but as a window into the deeper governance challenges of the European Green Deal.

Turbulence is now a defining feature of climate policy implementation. But it is not insurmountable. This thesis shows that it can be traced, understood, and if institutions are willing, it can even be managed. As CBAM moves into full force, its success will depend equally on how it is designed and on how actors across states and sectors mitigate and adapt to the turbulence already present. That is where the real work begins.

Appendix

Appendix A: Norway Documents

Source Type	Number of Documents	Earliest Date	Engagement Tone	Notes
EEA Notes	4	Mar 2023	Technical, procedural	Mostly legal-technical with limited interpretive framing. Shows early formal awareness of CBAM and ETS adjustments. Emphasises EEA alignment process but lacks proactive regulatory tone.
Consultation Documents	15	Aug 2021	Mixed, reactive	High industry input, many with critical or cautious tones. Government bodies cautious and procedural. Signals administration delayed and fragmented response.
Letters	3	July 2021	Lobbying, administrative	Reveal early political/industry concern about Norway's integration in CBAM. NHO seeks coordinated position. Show policy pressure from business early on.
Government Messages	6	Oct 2021	General, programmatic	Budgets and messages reveal CBAM barely mentioned until 2023–2025. Mostly used to reaffirm net zero or industrial competitiveness plans, with CBAM added in late.
Reports and Articles	17	July 2021	Analytical, strategic	A diverse mix of government reports (e.g. NOU, Ekspertutvalget), agency analyses, think tank papers, and relevant academic papers. Several provide critical reflection on CBAM's implications for industrial competitiveness, regulatory clarity, and Norway's climate policy credibility. Documents vary in quality, but the strongest contributions offer detailed assessments of long-term risks, sectoral vulnerability, and

				institutional delay. Particularly valuable for identifying gaps between climate ambition and operational readiness.
News & Media	57	June 2021	Broadly concerned to cautiously affirmative	Traces early confusion, internal disagreements, and delayed decision-making (2021–2023), followed by gradual policy convergence (2024–2025). Strong industry voices warn of competitiveness risks and carbon leakage. Later documents confirm Norway's 2027 CBAM entry and clarify agency responsibilities (Miljødirektoratet, Skatteetaten). Media strongly reflects turbulence in timing, authority, and coordination.

Appendix B: Sweden Documents

Source Type	Number of Documents	Earliest Date	Engagement Tone	Notes
Industry/Stakeholder Consultation Responses	6	10 Sep 2021	Technical, moderately critical	Businesses provided early input on administrative burden and clarity needs.
Parliament (Riksdag)	13	Mar 2022	Structured, low-friction	CBAM discussed as part of broader EU climate/ETS issues; limited direct critique.
Government, Legal and Implementation Texts	5	Sep 2023	Detailed, rule-based, coordinated	Laws and regulations implement CBAM and assign clear authority to Swedish agencies.
Environmental Agency, Public Guidance (Naturvårdsverket)	16	Dec 2023	Highly structured, instructional, proactive	Agency issued FAQs, importer manuals, and CBAM guidance tools in line with EU phases.
Strategic Memos and Government Press Materials	12	Jan 2022	Technocratic, pragmatic, aligned with EU	Meeting agendas, press releases, and memos show national alignment and interest in simplification.

Academic and Analytical Reports & Papers (Government + Industry)	15	Jul 2021	Expert, critical, forward-looking	Reports examine CBAM's fit with ETS, risk of friction, and gaps in Swedish enforcement.
News and Media Commentary	15	Aug 2021	Mixed: critical, narrative, investigative	Articles reflect confusion, administrative gaps, sectoral concerns, and policy delays.

Appendix C: EU Documents

Source Type	Number of Documents	Earliest Date	Engagement Tone	Notes
Official EU Documents (Commission, Parliament, EESC)	35	Mar 2020	Legalistic, explanatory, institutional	Provide formal regulatory architecture: the CBAM Regulation, implementing acts, guidance (e.g., Q&A, registry protocols), and designation of NCAs. Emphasise staged implementation, legal coherence, and ETS linkages. Many clarify reporting obligations and scope, but reveal administrative complexity and shifting responsibilities across EU bodies. Serve as a baseline for institutional expectations.
Parliamentary Discussions	5	Feb 2022	Procedural, contested, sometimes defensive	Questions and statements show internal uncertainty about CBAM's trade alignment, WTO compliance, timing, and competitiveness effects. MPs flag concerns over industry pressure, unclear role of free allowances, and transition risks. Highlights contested authority and inter-institutional friction.
Reports & Articles (Think tanks, NGOs, policy institutes, academics)	22	Jul 2021	Analytical, policy-critical	Deep analysis from CEPS, Bruegel, Agora, Sandbag, OECD, etc. Topics include loopholes, competitiveness risks, policy layering, and export rebate tensions. Offer strong insight into turbulence: timing mismatches, layering over ETS, and mixed messaging from EU institutions. Help contextualise why national actors experience turbulence ,

				CBAM is evolving and contested at source.
News/Media Coverage (Politico, Euronews, Eurometal etc)	30	Mar 2021 –	Critical, policy-focused, geopolitical	Capture narrative volatility around CBAM: industry confusion, Omnibus controversy, Ukraine and sanctions links, and Green Deal fragmentation. Reveal stakeholder misalignment, temporal mismatches, and concerns about administrative clarity. Coverage shows CBAM is seen as turbulent within EU borders, not just externally.

Appendix D: Interview Details

Interview	Country	Actor	Institution	Location	Date
Interview 1	Norway	Civil servant	Environment related ministry	Oslo	06/03/25
Interview 2	Norway	Industry Representative	Silicon and ferrosilicon producing company[3]	Oslo	07/03/25
Interview 3	EU (not country affiliated)	Policy Advisor	Climate related NGO	Brussels	07/03/25
Interview 4	Norway	Industry Representative	Aluminium producing company	Brussels	12/03/25
Interview 5	Norway	Policy Advisor	Norwegian industrial lobby organisation	Brussels	18/03/25
Interview 6	Norway	Journalist	Norwegian climate-focused media outlet.	Brussels	18/03/25
Interview 7	Norway	Civil Servant	Environmental related government agency	Oslo	25/03/25
Interview 8	Sweden	Policy Advisor	Swedish business association	Stockholm	01/04/25
Interview 9	Sweden	Industry Representative	National steel producer association	Stockholm	07/04/25
Interview 10	Sweden	Civil Servant	Environmental related government agency	Stockholm	22/04/25
Interview 11	Sweden	Industry representative	Steel producing company	Brussels	23/04/25

[3] This actor does not represent the Aluminium Sector in Norway like other industry representatives, instead they represent the silicon and ferrosilicon industry. While this sector is not included in CBAM's initial scope, it is expected to be phased in during the mechanism's second implementation round. The interview is therefore relevant not only as an indicator of anticipatory governance concerns, but also as a window into how actors outside the first wave of covered sectors are already responding to regulatory uncertainty and perceived turbulence in CBAM's rollout.

Appendix E: Detailed Codebook

Folder	Name	Description
Codes\\General Themes	CBAM legitimacy and support	Normative support for CBAM's climate or market goals.
Codes\\General Themes	EEA and non-EU disadvantage	Norway's external status seen as producing systemic exclusion.
Codes\\General Themes	Fairness and justification claims	Moral or normative arguments about CBAM's effects.
Codes\\General Themes	Geopolitical fragility of CBAM	Fears that international pushback could weaken CBAM's ambition or integrity.
Codes\\General Themes	Geopolitical positive framing of CBAM	CBAM portrayed as a power instrument in global or trade terms.
Codes\\General Themes	Policy learning or emulation	CBAM used to justify or inspire domestic policy shifts.
Codes\\General Themes	Positive assessment of admin role	Respondents express confidence, approval, or satisfaction with administration's involvement in CBAM processes.
Codes\\General Themes	Turbulence within EU climate politics	Signs that intra-EU tensions affect CBAM's clarity, implementation, or political standing.
Codes\\General Themes	Uncertainty about CBAM's future	Doubts or speculation about whether CBAM will remain stable or coherent over time.
Codes\\H1 – Shifting Parameters	Administrative overload	CBAM imposes workloads or expectations that exceed existing administrative capacity.
Codes\\H1 – Shifting Parameters	Knowledge or resource gaps	Lack of technical, procedural, or legal expertise to fully engage with CBAM.
Codes\\H1 – Shifting Parameters	Limited consultation or access	National actors express frustration at limited involvement or insight into EU processes.
Codes\\H1 – Shifting Parameters	Mismatch with national systems (H1)	CBAM clashes with existing legal, institutional, or reporting systems.
Codes\\H1 – Shifting Parameters	Unclear responsibility (H1)	No clear assignment of responsibility across national actors or agencies.
Codes\\H2a- Intercurrence Regulatory Layering	Disruption of industry routines (H2a)	CBAM challenges sectoral norms, practices, or long-standing assumptions around climate policy.
Codes\\H2a- Intercurrence Regulatory Layering	Policy layering tension (H2a)	CBAM and ETS overlap creates ambiguity or friction in compliance and reporting.
Codes\\H2a- Intercurrence Regulatory Layering	Sectoral adjustment pressure (H2a)	CBAM triggers pressure to reconfigure industrial strategies or governance.
Codes\\H2a- Intercurrence Regulatory Layering	Strategic adaptation (H2a)	Industry actors change tactics in response to regulatory disruption.
Codes\\H2b - Intercurrence Institutional Misalignments	Cross-level procedural tension (H2b)	National implementation clashes with EU-level procedures or interpretations.
Codes\\H2b - Intercurrence Institutional Misalignments	Mandate overlap or contradiction (H2b)	Different institutions claim responsibility for CBAM, causing governance friction.
Codes\\H2b - Intercurrence Institutional Misalignments	Multi-regime integration failure (H2b)	CBAM is not effectively integrated with domestic industrial or climate policy.

Codes\\H2b - Intercurrence	Policy regime interference (H2b)	CBAM and ETS/national policy logics clash or contradict each other.
Codes\\H3 – Temporal Complexity	Asynchronous communication (H3)	Poor timing or clarity of information across levels of governance.
Codes\\H3 – Temporal Complexity	Lack of readiness (H3)	CBAM implementation begins before institutions are prepared.
Codes\\H3 – Temporal Complexity	Procedural delays and bottlenecks (H3)	Internal or inter-institutional slowdowns in adapting to CBAM.
Codes\\H3 – Temporal Complexity	Reactive policy adaptation (H3)	Institutions respond to CBAM after-the-fact, not proactively.
Codes\\H3 – Temporal Complexity	Timeline mismatch (H3)	National and EU deadlines conflict or fail to align.

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