

EFFECTS OF SUPRANATIONALISM
ON ENVIRONMENTAL POLICY RESILIENCE:
AN ANALYSIS OF THE EU EMISSIONS TRADING SYSTEM

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DECLARATION OF ORIGINALITY

I, Hunca Seyfettin Baran, certify that

- I am the sole author of this thesis and that I have fully acknowledged and documented in my thesis all sources of ideas and words, including digital resources, which have been produced or published by another person or institution;
- this thesis contains no material that has been submitted or accepted for a degree or diploma in any other educational institution;
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ABSTRACT

Effects of Supranationalism on Environmental Policy Resilience:

An Analysis of the EU Emissions Trading System

This research examines the effects of supranationalism on the viability and resilience of environmental policies through an analysis of the EU Emissions Trading System (ETS). It hypothesizes that the increased level of supranationalism has a positive effect on the viability and resilience of environmental policies. This thesis examines the internal debates in the EU, ETS- related reports, and policy design choices to uncover patterns that can increase viability and resilience. The main argument is that the increased level of supranationalism caused the ETS to be more centralized and made non-compliance harder for the EU Member States as well as several Member State-internal stakeholders. This thesis also argues that the information channels between the Commission and the stakeholders increased the resilience of ETS by allowing the Commission to tailor it according to business stakeholder needs. This research focuses on the puzzle of how the EU, a multinational structure with many actors, was able to build and sustain its ETS.

ÖZET

Uluslararası Ticaretin Çevre Politikası Dayanıklılığına Etkisi: Avrupa Birliği Emisyon Ticaret Sistemi Üzerine Analiz

Bu araştırma projesi uluslararası ticaretin çevre politikası gerçekleştirilebilirliği ve dayanıklılığı üzerindeki etkilerini incelemek için AB Emisyon Ticaret Sistemi'ni (ETS) analiz etmiştir. Bu doğrultuda, uluslararası ticaret ile çevre politikalarının gerçekleştirilebilirliği ve dayanıklılığı arasında doğru bir orantı olduğu öngörülmektedir. AB ETS'nin gerçekleştirilebilirliği ve dayanıklılığını artırabilecek tüm etmenleri keşfedebilmek için bu çalışmada AB içi tartışmalar, ETS ile ilgili raporlar ve ETS dizaynı incelenmiştir. Yüksek uluslararası ticaret seviyesinin ETS'yi merkezileştirdiği ve hem AB üyesi ülkeler hem de bu ülkeler içerisindeki tarafların ETS'ye uymamasını zorlaştırdığı bu tezin en temel argümanıdır. Ayrıca Komisyon ve taraflar arasındaki bilgi kanallarının Komisyon'a ETS'yi iş paydaşlarının ihtiyaçlarına daha uygun hale getirebilme şansı vermesiyle, ETS dayanıklılığın arttığı da bu tezin ikincil argümanıdır. Bu araştırma AB'nin, çok uluslu ve çok aktörlü yapısına rağmen nasıl bir ETS oluşturup bunu sürdürebildiği sorusuna çözüm bulmaya odaklanmaktadır.

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	1
CHAPTER 2: EFFECTS OF INSTITUTIONS ON VIABILITY AND RESILIENCE OF EMISSIONS TRADING SCHEMES	8
2.1 Institutions and institutionalism	9
2.2 Explaining policy outcomes in climate change policies	17
2.3 Definition of policy	23
2.4 Policy cycle and policy evaluation	26
2.5 Factors that affect policymaking and policy design	29
2.6 Non-actor factors	34
CHAPTER 3: METHODOLOGY	42
CHAPTER 4: EMISSIONS TRADING SYSTEMS AND FORMATION OF THE EU EMISSIONS SYSTEM	45
4.1 General reasoning and basic functioning mechanism of ETSs	49
4.2 Historical background of the EU ETS	50
4.3 The political and organizational structure of the EU	60
4.4 Ambition of the European Commission	76
CHAPTER 5: DESIGN SPECIFICS OF THE EU ETS AND EVOLUTION THROUGH PHASES	83
5.1 Emission and sector coverage	83
5.2 Cap	88

5.3 Allocation methods.....	91
5.4 Flexibility options.....	100
5.5 Monitoring Reporting and Verification (MRV).....	107
5.6 Linking	112
5.7 Earmarking revenues	116
5.8 Market stability mechanisms and allowance prices	118
5.9 Carbon Border Adjustment Mechanism (CBAM)	125
5.10 Key points from EU ETS design choices	126
5.11 Stakeholders and their needs	130
5.12 Effects of EU-internal policy diffusion mechanisms and enforcement tools	139
5.13 Enforcement	145
CHAPTER 6: DISCUSSION	148
CHAPTER 7: CONCLUSION.....	160
REFERENCES.....	162

CHAPTER 1

INTRODUCTION

The earth has been housing us, humans, for a couple of hundreds of thousands of years. Although this globe is home to us, as well as an estimated more than 8.7 billion species (“Biodiversity”, n.d.), it is facing more and more problems, which creates consequences for the world’s inhabitants. These consequences include the deaths of many organisms and a decrease in biodiversity, which can also cause more deaths due to shifts in ecosystems and food chains. Since we have only one world, it is important for us to thoroughly understand the environmental problems and work to mitigate them as much and as fast as possible.

Among the prominent environmental problems, we can talk about the two most urgent and relevant ones, they are pollution and climate change. Pollution can happen in many different types of media, including soil pollution, air pollution, and water pollution; as well as through different pollutants, such as radioactive pollution, microplastic pollution, greenhouse gas pollution, etc. Pollution, as a concept, is quite vast and cannot be studied by one research project in its entirety. However, to summarize quite generally, environmental pollution has a twofold negative effect. It affects organisms directly, and it may affect organisms indirectly, by making their habitats more hostile. The direct effect includes a buildup of toxicity and resulting health problems, for example, the rise in lung cancer due to decreased air quality. An example of the indirect effect would be eutrophication, the case where nitrogen pollution helps algae in water bodies to thrive, which makes the aquatic habitats quite inhospitable for all other aquatic species. Another example of an indirect effect

of pollution is its contribution to climate change through greenhouse gasses, the focus of this thesis.

Greenhouse gases include water vapor, carbon dioxide, nitrous oxide, methane, and some fluorinated gasses (Denchak, 2019). Except, for the fluorinated gasses, the other greenhouse gasses (GHGs) have been naturally circulating the earth even without any human intervention. They are not necessarily harmful to the environment, many of them are involved in metabolic activities. They also regulate the temperature of the earth, making it hospitable for life (Denchak, 2019). They create a barrier around the earth, that impedes the sun's rays to be reflected to the space, many of the rays are reflected back and forth between the earth and the atmosphere, heating the earth in the process. An anthropogenic rise in the GHGs however, takes this effect to the extreme. With many different anthropogenic activities (including all kinds of industry, agriculture, animal husbandry, as well as certain forest-related activities), we emit more GHG than necessary. This results in a risky rise in the temperature that creates climate change. Climate change means unwanted changes in average temperature (global warming), which has direct negative effects on many facets of life. It may lead to melting glaciers (this is detrimental to Arctic and Antarctic ecosystems and can increase water levels elsewhere), increases in wildfires, increases in hurricanes/floods and extreme weather events, increased risk of water scarcity, increased risk of food insecurity due to lowered agricultural performance and forced migration.

It can be misleading to talk about climate change as a negative end that might happen in the future, similar to an apocalypse. It is a phenomenon that is currently in action. The earth temperature has been rising approximately 0.08° Celsius per decade since 1881, the increase is however approximately 0.18° Celsius per decade since

1981 (Lindsay et al., 2022). This trend can also be seen through the warmest year records, the top seven of which are all after 2014 (“2021 joins top 7 warmest years on record,” 2022). So far, the global temperature raise is approximately 1.1° Celsius from the pre-industrial times (ibid.). This might not seem like a lot; however, this includes night temperatures as well as winter temperatures, and all regions of the world. In some seasons or regions, the increase is more and will also show more negative effects. Therefore, a 1.1° Celsius rise in global average yearly temperature is quite significant and is responsible for the increases in melting glaciers, wildfires, and extreme weather events. In line with this, the Paris Agreement -adopted by the parties at the UN Climate Change Conference in 2015- aims to keep the temperature rise from the pre-industrial times well below 2 ° Celsius, and ideally below 1.5° Celsius (Paris Agreement, Article 2/1a). In order to realize this goal, different actions are taken by different countries and organizations, such as carbon taxes, emission standards, and carbon markets. An important example of a carbon market is the EU Emissions Trading System (EU ETS).

With its debut in 2005, EU ETS is the first multinational cap-and-trade system ever built. Although it had a patchy ride, the details of which we will elaborate, it is still working and hence it is also the cap-and-trade system with the longest span of operation. EU ETS is important in many ways. Firstly, it paved the way into an era where emissions trading and the cap-and-trade systems are the main policy choices for many countries. Secondly, with its early player status, it inspired many other systems that adopted similar design paradigms. For these reasons, it is one of the most influential -if not the most influential- environmental policy and policy design.

Examining the EU ETS can give us very important insights into various aspects of policy design and policy resilience. EU is the early mover in the cap-and-trade game, which provides it with many advantages and disadvantages. The advantage is that the EU got to decide on its design choices on its own and without any need to be compatible with any other carbon market in existence or without needing to account for linking its system. However, as an early mover, it lacked any lesson learning that it provided to other late movers. Hence some design choices were not optimal, causing the carbon market prices to collapse more than once. As said, being an early mover made the EU freer in many of the design choices. However, the EU ETS and its design choices were by no means coordinated by a single body. Being a supranational organization, the EU has many different institutions and Member States to be satisfied, in order to have a Union-wide ETS up and running. These directly include decisive institutions of the EU, such as the EU Commission, Council of the European Union, and the European Parliament, as well as the Member States and the actors within, including businesses, academics, NGOs, and the general population. Despite the number of actors, designing and implementing an enforceable and environmentally integral ETS was possible in the EU and this thesis examines this puzzle.

NGOs, environmental organizations and academics hope for environmental integrity, hence a stricter cap-and-trade system. However, businesses tend to prioritize their profits, and hence, they can ask for a considerably more lax system. Moreover, different Member States might have different environmental and policy goals and significant differences in their domestic stakeholders (businesses, NGOs, etc.). For these reasons, the adoption and implementation of the ETS was not easy.

Although other single-state or two-state ETSs are in operation, due to the organization of the EU, EU ETS involves much more actors than its single-state or two-state counterparts. Being a system with this many actors with different preferences could have been a barrier against the formation and the viability of the EU ETS. However, EU ETS has been successfully initiated, proving its viability. Moreover, even though it suffered overly-cheap carbon prices it was able to bounce back, which considering the fact that it is the longest-running ETS so far, hints at the resilience of the system. Although there are single-state ETSs in operation, other systems with a comparable amount of actors -due to the federal nature of their jurisdiction- such as the US and Canada could only form ETS in some of their states and provinces. Moreover, in Kazakhstan's case, we see the lack of stability of the market structure as a reason for the suspension of the system (Baigunakova et al., 2017, p. 13). EU was not only able to operationalize its system in a multi-actor setting but it was also able to keep the EU ETS operational despite carbon price crash, demonstrating the resilience of the EU ETS. Looking at the EU ETS case in particular, could provide us with information on what enabled the EU to have a viable and resilient ETS.

Several features of the EU organizational structure and the policy design of the EU ETS, helps the high viability and resilience of the EU ETS. Firstly, the level of supranationalism in the EU plays a positive role in the viability and resilience of the EU by allowing the EU institutions to override parts of Member State sovereignty, thereby decreasing the Member States' power to veto the EU ETS or lag in its implementation. Enforcement procedures and infringement rules, characteristics of the supranational structure, made lagging both difficult and disadvantageous for Member States and the actors within. Therefore, the

supranational nature of the EU has allowed the EU ETS to successfully diffuse within the EU. Lastly, as a market structure that has the potential to fail, it is also probable to argue that the policy design was a factor that increased resilience.

Since this thesis focuses on the resilience of the EU ETS, we need to define resilience in the context of the EU ETS. This thesis will be using a two-point definition for resilience, which include the stages before and after the operationalization. First, a policy such as the ETS can be scrapped before it gets operational, which might be due to political stalemate or lacking support from various stakeholders. A successful operationalization in this regard would point to the resilience of the policy. Moreover, a policy can be abolished after its operationalization, either due to political reasons or due to low success in implementation. Our definition of resilience also includes the continuous implementation of the policy after its operationalization.

As I argue that the EU's institutional structure -including its supranational nature- and EU ETS policy design could be the reasons for the viability and resilience of the EU ETS, this thesis will be looking at the institutional structure of the EU and the policy design of the EU ETS. This thesis hypothesizes that the level of supranationalism of the EU makes lagging and non-cooperation more difficult and thereby increases the viability and resilience of EU policies. Moreover, since EU ETS is a market structure, its stability is also an important factor in its resilience. Therefore, this thesis also hypothesizes that the EU ETS design choices -which were taken and implemented with the help of EU institutional structure and supranationalism- made Member State-internal stakeholders less likely to lag or be non-compliant.

Due to its importance, the EU ETS is not an understudied case. Although we will go into more detail in the following chapter, the EU ETS has been researched based on its history, how it came to effect, as well as how it became more central compared to its decentralized origins. This research, however, still makes a valuable contribution to the existing literature. Firstly, EU ETS is an evolving system. With its fourth phase having begun in 2021, we need to make sure that the latest design options and stakeholder views are accounted for. Therefore, a new study that includes the latest information on the EU ETS is a contribution. Moreover, this research will link two seemingly distant research areas. Firstly, it will make use of institutionalism and game theory with a focus on supranationalism. Secondly, it will also incorporate a lot of information and research on stakeholders and policy design, thereby benefiting from the methodologies of a policy paper. With this mix of research areas, this thesis plans to provide its readers with an all-encompassing picture of the EU ETS, both from an institutional and policy lens.

I argue that the EU ETS to be a more viable case compared to ETSs of many US states and Canadian provinces and several single-state ETSs like the Kazakh ETS, due to its supranational nature. I argue this supranational nature to be a mitigative factor for the high number of actors that could have otherwise led to policy stasis. Therefore, to base my findings I will go through examples from these ETSs for understanding what was different in the EU ETS case. Parts of this thesis will have comparative tendencies and language. However, a full-fledged comparative research that compares the EU ETS case with one or more of these markets in greater detail would be a great addition to what this thesis intends to do.

CHAPTER 2

EFFECTS OF INSTITUTIONS ON VIABILITY AND RESILIENCE OF EMISSIONS TRADING SCHEMES

As also stated in the introductory chapter, this research project will touch upon different characteristics of the EU ETS, its changes, and the factors that affect its resilience. While looking at these factors, it is important to look at how EU ETS came into existence, and how its design, change, and enforcement might have played a role in its viability and resilience. EU ETS is a complex system with many different stakeholders, so there are many actors and moving parts that can be examined to explain the viability and resilience of the system. However, since the EU ETS is created and reformed by national governments and the supranational EU, these governmental and supranational institutions can have a strong influence on the system. It requires volition from these actors to decide on using an ETS, designing it, and enforcing it. Any institutional feature that might make the ETS or part of its design less preferable to any of these actors can result in a lower chance of success. Moreover, any veto point or institutional bottleneck can affect the initiation and functioning of the system. That is why looking at the institutions that create and sustain the ETS can provide us with information on the effect of institutional factors that play a role in the success of ETSs. For this reason, we will be looking at different components of institutions and we will try to find out how the institutional structure affects policy designs and policy resilience. In order to do that, we must first develop a theoretical framework, upon which the arguments of the paper will be laid. To build the theoretical framework, I will review the literature on institutionalism, institutional change, policy change, and supranationalism.

2.1 Institutions and institutionalism

In order to have a good understanding of institutions and institutional change, we need to go through types of institutionalism and see how they define institutions and how they account for the formation of institutions, changes in them, and how they affect behavior. When we look at the new-institutionalist literature, we see three main and traditional kinds of institutionalism. These include rational choice institutionalism, historical institutionalism, and sociological institutionalism (Hall and Taylor, 1996, p. 936).

Historical institutionalism defines institutions as, the conventions, procedures, and norms that are submerged in the structure of a polity (Hall and Taylor, 1996, p. 938). Historical institutionalism has several characteristics that are pointed out by different researchers in the institutionalism literature. The first is, unlike models such as rational choice or functionalist theories, historical institutionalism does not try to find direct cause-and-effect relations or mathematical conclusions from institutions and their effect on the behavior of individuals. The second characteristic is that, instead of focusing on each character equally, historical institutionalism tends to give importance to asymmetries of power while explaining how institutions come about and how they function (Ma, 2007, p. 63). This means that even though historical institutionalism cares about the historical aspect of the actors, organizations, and the rules/conventions, they focus on the power asymmetries for explaining the changes in these organizations and rules/conventions. In line with this power relation-focused lens, and with the name “historical”, historical institutionalism mostly views the development of institutions with a focus on path dependence and unintended consequences that result from events that happened through the course of history (Berman, 1998, p. 380). In other words,

unlike rational choice institutionalism, about which we will go into more detail in the following paragraphs, historical institutionalism does not explain the formation of institutions and how institutions affect behavior through unchanging rationality or utility-maximizing logics of individuals, but it explains these through all the events that happen before a given moment in the history.

Another part of neo-institutionalism is rational choice institutionalism. Rational choice institutionalism argues that institutions, such as the US Congress, work by lowering the costs of transactions of making deals and collaboration (Hall and Taylor, 1996, p. 942). While doing so, institutions may use many different methods and media, such as rules that regulate voting, and rules that limit the agenda to make the “rules of the game” conducive to collaboration. Unlike historical institutionalism, which focuses on history and path dependence, rational choice institutionalism focuses on the individuals. Moreover, while doing so, it sees the individuals as utility-maximizing agents, who have fixed sets of preferences, and try to satisfy these preferences in a strategic and calculating behavior (Steinmo, 2008, p. 162). Additionally, rational choice institutionalists mostly see politics, as a set of collective action dilemmas, within which actors strive to reach the outcomes that are best for them but may end up with results that are suboptimal for all the actors, especially if complementary behavior is missing (Hall and Taylor, 1996, p. 942). A good example of this would be the prisoners’ dilemma, in which, prisoners tend to choose the outcome that is suboptimal for all, as they do not know if the other actors would follow a complementary course of action. Just in line with its focus on individuals and agreement between them, rational choice institutionalism explains the emergence of institutions with the voluntary agreement of the relevant actors (Hall and Taylor, 1996, p. 945).

As mentioned in the paragraph above, rational choice institutionalists use the rules of the game, and veto points as important aspects of policy change. The literature includes studies that see political organizations through the lens of different veto points and studies that see politics as a collection of games. We will focus more on the game-theoretic approach of rational choice institutionalism later in this chapter. However, for the researchers that focus on veto points, we can give the examples of Tsebelis and Immergut. Tsebelis define veto points -or veto players- as an individual or a group whose acceptance is necessary for a policy change (Tsebelis, 1995, p. 293). Tsebelis divides veto points into two, that is institutional (bodies that are necessarily and structurally part of the political organization such as the parliament, or in some cases chambers of a parliament and presidency), and partisan veto points (different parties within a coalition government) (Tsebelis, 1995, p. 302). Tsebelis, in his studies, analyze the veto points with respect to policy stability, that is the difficulty to make changes in the existing policies (Tsebelis, 2011, p. 4). He finds out that policy stability is directly proportional to the number of veto points, the difference of political views of the veto points, as well as the cohesion within each veto point (Tsebelis, 1995, p. 293).

Immergut also makes use of veto points in her research (Immergut, 1992). She argues that the institutional specifications such as the regime type (democratic, autocratic), central/federal power distribution, the amount of party discipline, and the effectiveness of executive votes can constitute or eschew veto points for new policy proposals, which can impede or facilitate the passage of a new policy respectively (Immergut, 1992). For example, in a system where the executive and the parliament have the same party allegiance or ideologies, parliament can stop being a veto point for new policies by simply rubberstamping every single bill (Immergut, 1992, p. 65).

Immergut's paper that compares healthcare systems in France, Switzerland, and Sweden presents us with a good example how institutional configurations can change the veto points and other rules of the game which puts different actors into an advantage and other into disadvantage (Immergut, 1992). In her paper, Immergut tries to account for the reason why health insurance policies end up differently in different states. She examines different actors and metrics that relate to the medical profession, such as unionization or doctor-to-population ratio, etc. (Immergut, 1992). As a result, she finds out that the medical profession and related metrics have little effect on the final policy differences (Immergut, 1992, p. 82-83). She finds out that the differences in the health insurance systems stem mostly due to differences in political systems and how the political systems present different groups with different veto opportunities at different stages of the policy cycle (ibid.). By this, the political systems provide different interest groups with different game rules and thereby influence how and to what extent their interests can be translated into policies (ibid.). Another example can be given from the US where the presidents are more successful in passing new bills when they have the same party allegiance with Congress (Dye, 2013, p. 49-50). Senates in bicameral systems (ibid.) and the electorate -through referenda and given that they can overturn parliamentary decisions- can also constitute veto points which might hinder or slow down the passing of a new bill (Immergut, 1992, p. 66). Through the shape and functioning of institutions, the interest groups can have various effects in differing intensities as mentioned above. When the system allows the interest groups to veto, this may constitute a hindrance to institutional change and as a result, affect the policy design and policy landscape of a state (Immergut, 1992, p. 81-85).

The third type of neo-institutionalism is sociological institutionalism.

Sociological institutionalism defines institutions in a broader sense than the other two types of institutionalism covered so far, by seeing them as rules and shared meanings that provide the actors with shared cognitive frames (Fligstein, 2001, p. 7). This reduction of institutions to symbol systems and cognitive scripts, removes the differences between culture and institutions, by making institutions a part of the culture (Hall and Taylor, 1996, p. 946-950). In line with this merge of culture and institutions, sociological institutionalists argue that institutions not only affect behavior but also the preferences and identity of the individuals affected (ibid.). Sociological institutionalism sustains this human- and culture-focused view while explaining how institutions emerge too. According to sociological institutionalists, the institutions come about as the result of discussions and interchanges between relevant actors on their problems and how to solve them, which gives them similar cognitive maps and ideas about what is acceptable or preferred (ibid.).

Mostly neo-institutionalism is said to have three types. However, there are additional types, that seem to emerge as more research has been done. One of the notable types of neo-institutionalism is discursive institutionalism. This type of institutionalism focuses on the importance of discourse in explaining the cases of action and inaction. Schmidt, who introduced us to discursive institutionalism, defines discourse as, “whatever policy actors say to one another and to the public in their efforts to generate and legitimize a policy programme” (Schmidt, 2002, p. 210). She argues that in facilitating or blocking policy change discourse demonstrates both a cognitive function and a normative function (Schmidt, 2002, p. 213). According to Schmidt, the cognitive function entails ideas that point to the necessity and logic of a policy (Schmidt, 2002, p. 210). The normative function of discourse, on the other

hand, proves that the policy is fit for national and political values (ibid.). This relatively new and relatively less researched area of institutionalism is used by Hope et al. to account for policy stasis. Hope et al. use Estonian fiscal policies as an example of the effect of discourse in simple democracies. They use the US climate change policies as an example to see the effect of discourse in compound democracies, where governance has more than one center. The study finds that in a simple polity like Estonia due to the lack of different actors to variate the discourse, policy, and discourse alternatives are less likely to emerge and the same discourse can be projected to many different stakeholders, including the public (Hope et al., 2012, p. 415). However, in a compound polity like the US, the discourse needs to diffuse to different branches of administration and fight with competing discourses, leading it to be less focused on the environment (Hope et al., 2012, p. 415). For the US case, this is also coupled with the already existing discourse created by Byrd-Hagel Resolution which expressed the Kyoto Protocol as unfair to the US and its economy in various ways (Hope et al., 2012, p. 409). This has been used for a cause to be inactive for the years to come (Hope et al., 2012, p. 409). This research is important in the sense that it explains the importance of discourse in explaining policy change or stasis in climate change policies. However, one puzzle it creates is the case of the EU ETS. EU is similar to the US in the sense that it can be categorized as a compound polity, however, its climate change political framework cannot be defined as static. This is a gap that this research intends to fill.

All four types of neo-institutionalism mentioned have their definitions of institutions and theories on how institutions emerge and how they affect behavior. However, how do these three types compare? Historical institutionalism gives us a full account of how the institutions emerge but, how they affect behavior is not as

openly explained as in rational choice institutionalism, or sociological institutionalism (Hall and Taylor, 1996, p. 950). Because of its focus on path dependency and history, historical institutionalism makes it harder to account for institutional change (Thelen, 1999, p. 375-376). If everything happens with full dependence on the preceding events, then the concept of change would constitute a paradox. Some historical institutionalists account for this using critical junctures, in which the path dependency breaks due to important events such as crises (Thelen, 1999, p. 375-376). However, this view falls short of explaining the gradual and slow-moving changes, as well as explaining how the critical junctions themselves happen in the first place. Therefore, other types of institutionalism covered prove to be more agile in accounting for changes, as their models do not rely strongly on path dependency. Lastly, sociological institutionalism has the broadest model, which makes it easy for it to explain differences between institutions or changes in the institutions, as these are all affected by the culture. However, having a framework this broad makes the analysis of institutions harder because every single institutional phenomenon would break down into culture and general cognitive mapping, and causality chains between culture and institutional phenomena are not easy to find or prove. Moreover, the EU is culturally and sociologically quite diverse, making use of sociological institutionalism can result in the oversimplification of these differences and create a generic cognitive mindmap that only sub-optimally fits all the different actors and Member States. Historical institutionalism and rational choice institutionalism are more functionalist in how they study institutions, which makes it easier for them to gain insights into specific phenomena they wish to study. Moreover, rational choice institutionalism goes even one step forward and makes use

of equations to build predictive models, which is not easy to replicate if a researcher strictly espouses a historical or sociological institutionalist approach.

How does rational choice institutionalism compare to the others? Compared to other types of institutionalism, rational choice institutionalism explains how the institutions affect behavior quite explicitly. With that, rational choice institutionalism provides us with findings that are easier to analyze and test, making it a very powerful tool for analysis. Rational choice institutionalism can also incorporate elements from other types of institutionalism. For example, even though path dependence is an earmark of historical institutionalism, rational choice theory can make sense of path dependencies quite well. For example, a political framework that has a similar or admissive nature to a new policy proposal can facilitate the initiation and implementation of the new policy. Although historical institutionalists can explain this as an example of path dependency, rational choice institutionalists could argue that the closeness between the two policies reduces the costs for the actors involved, thereby increasing utility (Ladi, 2005, p. 6-7). Similarly, the effects of culture and cognitive mind maps can also be included in a rational choice institutionalist model, in which cultural norms that are admissive to a certain change or that facilitate actors to act in a certain way, can reduce the costs for actors.

Which type of institutionalism accounts best for an ETS's successful initiation, implementation, and resilience? For an ETS to come into force it needs communications between governmental bodies, and in EU ETS's case, it includes EU institutions as well. With consultations and lobbying, as well as elections other actors can get involved too. What each actor wants is important in a setting that has so many actors. However, what each actor can do to make sure that their preferences translate into results is also important. Veto points in the structure can affect how

preferences translate into decisions. This makes the organizational structure of the EU, an important factor. Variables such as existing political frameworks can also affect decisions and preferences by changing each action's cost. Rational choice institutionalism can explain both the structures that allow different actors to affect the decisions as well as the effect of veto points. After an ETS becomes operational, the number of actors becomes no less. ETS is a market structure in which businesses from various sectors and countries communicate, cooperate, and compete. How the market is designed can change the rules of these communications. Although it is safe to assume that cultural factors affect business decisions, businesses mainly aspire to maximize profit. They are much more strategy-driven actors than individuals or the electorate. Therefore, their decisions on how they would take part in the market or if they would choose to invest in greener technologies can be much more easily explained with rational choice institutionalism. For these reasons, this research intends to make use of rational choice institutionalism. However, as mentioned before, both EU and EU ETS are extremely diverse in all their actors. Having a strong rational choice focus can cause us to overlook details of the communication and discourse between the EU institutions and EU ETS stakeholders. Therefore, this research intends to also go through discourses between those actors and see how they might have affected the policy outcome.

2.2 Explaining policy outcomes in climate change policies

At first look, it looks like the climate change responses given by countries have no logical explanations. After all, climate change is a reality, and failing to address it correctly can kill millions. If people were logical entities that maximize utility, then climate policies would have been universal and more stringent. Climate change

started to affect the lives of many, with increases in temperatures, increases in forest fires (especially in Mediterranean countries), increases in numbers of hurricanes (such as in the US), and increases in the occurrence of floods (a recent example being in Trier, Germany), melting of the glaciers. Therefore, it is becoming clear that its outcomes cannot be postponed to the next generations. Even though the issue is getting more visible and perceivable, there are still many laggards. Even the countries that take action regarding climate change end up taking suboptimal actions. For example, Germany has laws that prohibit older diesel cars to drive in many of its cities including cities like Cologne and Berlin. However, the same cars that are banned due to their high emissions are sold to African countries, a phenomenon that is seen in many countries while Germany has the largest volume in the EU (United Nations Environment Programme Economy Division, 2020, p. 26). Contradictory policies as such might show us that the governments might not be following utility maximization, or if they do, the preference of the governing actors might be lying under sources other than environmental integrity.

The issues with non-action and laggards are not unexpected results according to rational choice institutionalism. Many of the climate change-related issues resemble a Nash equilibrium. Nash equilibrium is the situation in which, given that the other actors do not change their choices, a given actor has done their best in a given situation (Lee et al., 2019, ch. 2.3). This best situation does not have to be -and rarely is- the optimal solution to a problem (Wood, 2011, p. 155-157). Using this example for climate change policies, states might have two choices, to abate or to emit. In the case where all the other states emit, the rational thing to do for a state is to emit as well. As not emitting would make no meaningful environmental difference, while creating meaningful economic disadvantage. In the case where a

majority of other states are abating emissions, it is the reasonable choice for a state to emit, as this would give the state an economic edge, while also allowing it to enjoy a sustainable earth by freeriding on other states' efforts. This means in each case it is more reasonable for the state to continue to emit or abate carbon much less than the possible amounts of reduction (Luterbach and Sprinz, 2018, p. 96). However, this is a normal form non-cooperative game approach where actors have no information other than what the problem is and what their choices are, similar to the prisoners' dilemma. However, rational choice institutionalism makes use of other game structures. One is the extensive form game in which either the players play one after the other where the players see the previous moves, or they play the same game over and over and remember the moves made in the previous games -called a repeated game structure- (Wood, 2011, p. 160). This is a better structure for the emission mitigation policies and actions as emission mitigation is a continuous process (Wood, 2011, p. 160). This game structure focuses on threats of punishment by other actors, which can change the outcomes (Finus and Rundshagen, 2003, p. 1).

When the games repeat and threats by other actors join the equation a perfect Nash equilibrium is less likely to be reached as many games have their own subgame perfect equilibria (Wood, 2011, p. 160). This increases the chances of cooperation to much higher levels than simple games, like the prisoners' game (Wood, 2011, p. 160). Similar to repeated games, there are other extensive form game designs, that can teach us about emission mitigation policy outcomes. All of the games above assume each actor chooses what is best for them, given the configurations of the game. However, another type of game called the ultimatum game shows us that this might not be the case. In this game, two players play one after the other. Player one is offered money and is asked to offer distribution for the money between themselves

and the second player. The second player is then asked if they would accept the offered money. If the second player accepts the offer, then everyone takes the money in accordance with the deal. If the second player rejects the offer no one receives any money. Since any money is better than no money, mathematically the second player should accept any non-zero offer and they should be indifferent in the case where the offered sum is zero (Wood, 2011, p. 158). However, when this game was played with real humans, it was seen that if the second player is offered less than 30% they are unlikely to accept the offer (Wood, 2011, p. 158). This shows us that the perception of fairness can affect the utility judgments of the players.

Another non-cooperative extensive form approach is the treaty participation game. This game has multiple versions. In the two-player version, firstly the players are asked at the same time if they would sign a specific document (Wood, 2011, p. 158, 159). As a result, both, none, or one of the players can end up as signatories. Then the signatories are asked to choose between mitigate or emit, with regard to maximizing the collective payoff (Wood, 2011, p. 158, 159). Then the non-signatories are asked the same question (Wood, 2011, p. 158, 159). According to this design, all non-signatories are better off emitting in case there are no signatories (Wood, 2011, p. 158, 159). In case there is only one signatory, the signatory would then assume the non-signatory to emit so the signatory would be better off emitting (Wood, 2011, p. 158, 159). In the case where both of the players are signatories, then they are both better off mitigating, as it would maximize the global payoff (Wood, 2011, p. 158, 159). Moreover, when we look at the payoffs of being a signatory, it is seen that if one of the players is a signatory then the other player is better off being a signatory as it would give it a chance to maximize payoff for the whole group if a player is not a signatory then the other player would be indifferent about being a

signatory (Wood, 2011, p. 158, 159). Since the signing becomes simultaneous, and none of the players can know about the other player's status beforehand, the subgame perfect equilibrium is signing the document. In the case where there are more than two players, then due to the increased number of players signing the document and due to the increased chance of dropping out of the document, signing is no longer the subgame perfect equilibrium at all times, resulting in lower participation rates (Wood, 2011, p. 159). The recommendation to improve a game design as such is to add reciprocal elements such as trade restrictions (Wood, 2011, p. 159). Wood also points out that issues such as carbon leakage and free riding can be improved by adding border tax adjustments however, they need to be designed in a way that trade partners perceive as fair (Wood, 2011, p. 159, 160).

There are different game structures where a specific Nash equilibrium does not exist. A good game model as such, that is also representative of emission mitigation policies is the cooperative games. These games include settings where actors are in a coalition or an agreement (Wood, 2011, p. 161-164). The coalition can include all -or almost all- actors in the game, or the game might feature many different coalitions (Wood, 2011, p. 161-164). In both games, the chance of collaboration (emission mitigation) is higher than in the normal-form games (Wood, 2011, p. 161-164). In settings where all actors are in a coalition, coalition players who do not cooperate are deterred from non-compliance through threats of punishment (Wood, 2011, p. 161-164). For example, a Member State who infringes any rules of the ETS could be punished which forces the Member States to cooperate. In the game setting with multiple smaller coalitions, -along with the laggards in coalitions- actors who are not in coalitions are punished (Wood, 2011, p. 161-164). For example, any tax or levy an ETS introduces for imports coming from

outside its operation area can be showing earmarks of a multiple smaller coalition game.

The last sub-theory of the game theory that we will go through is the implementation theory. This theory tries to find out the design choices that can be implemented in non-cooperative games, that can make the players more likely to choose the optimal outcome (Wood, 2011, p. 164). Several methods are included in the literature. A voting or a consensus-based decision procedure can help the players more likely to sign an agreement and implement it, the formation of UNFCCC can be an example given for this (Wood, 2011, p. 165). Another example is matched abatement goals, in which players first come up with percentages and conditions that match their abatement goals to their opponents' abatement goals which are added to their unconditional bare minimum abatement amount (Wood, 2011, p. 166). A design as such is not attested either in UNFCCC, Kyoto, or EU ETS, however, this shows us with correct design choices competition between countries can lead to increase ambition instead of meeting at the least common denominator.

Shortly, neo-institutionalism has four types of approaches and each approach is better at something different. In order to be able to extract all of these different strengths of different types of institutionalism and also to be able to make justice to the complex multidimensional functionings of actors that give rise to different emission policies, this research will use a mix of rational choice institutionalism and discursive institutionalism. When we look at emission mitigation policies we see many variables, the interplay of which might change their viability of them, final policy designs, levels of stringency, and overall resilience. The interplay between the institutions of the EU and the Member States can be made sense by uncovering the veto points -or lack thereof- and the rules of the game. Looking at the discourse

between the institutions of the EU and the Member States can also provide us with insights into how and why the rules of games were set the way they are. Lastly, different Member States and businesses that are forced to take part in a market that can limit them, make this case an interesting interplay of strategies. This means making use of the game theories of rational choice institutionalism is especially fit for this case.

2.3 Definition of policy

As this research project will go through the initiation, design options, and resilience of ETSs, it is also important for us to go through how we define policies and their basic properties. An overarching definition of policies can be found in the works of Mény and Thoenig. According to them, it is “the product of the activity of an authority vested with public power and governmental legitimacy” (Mény and Thoenig, 1989, p. 129, own translation). This definition does not define public policies as choices of the governments, but rather as a product of their activities, which stresses a causal relationship with government activities and resulting policies, rather than equating the choices and the policies. Since enacting new policies is a complex procedure and the design of each policy might differ in each state even though the government made the same -or similar- choices, this definition makes policies justice. A more recent definition of public policy is given by Lemieux. Lemieux’s definition is quite like Mény and Thoenig’s definition as it also defines the policies as products of activities. However, Lemieux adds several updates to Mény and Thoenig’s definition. He adds that public policies are aimed at the resolution of public problems (Lemieux, 1995, p. 7; Larrue et al., 2007, p. 23). Lastly, his definition also adds that the public policy process and the mentioned

relationship have an evolving nature (ibid.). This makes the public policy definition wider, by accounting for differences in actors and time (through evolution).

The last definition of public policy that we will see comes from Larrue et al. This definition is quite like Lemieux's definition in the sense that it accounts for the changing natures of political actors. Larrue et al. also argue that public policies are aimed at solving public problems (Larrue et al., 2007, p. 24). However, their definition has a wider look on the actors of public policies, as they define public policies basically as, "intentionally coherent decisions or activities" by various public and private actors (ibid.). This definition is more inclusive than other definitions as it includes private actors and peripheral agents in the policy process. Since public policies can also be shaped by actors such as NGOs, lobbyists, or the electorate (through elections and referenda), we can say that Larrue's definition makes a better job of including all the actors responsible for policy formation. Moreover, Larrue's definition also stresses intention and coherency as important aspects of public policy (ibid.). This paper accepts this point, as policies (e.g., health-care policies, emission mitigation policies, etc.) include choices that are thematically related (healthcare policies are comprised of solving problems about healthcare and access to healthcare, and similarly emission mitigation policies are comprised of choices that try to abate emissions), which shows that coherence of choices is a necessary part of policy definition. Since Larrue's definition accounts for different actors in policymaking and has important attributes that differentiate policies from random groups of choices, it makes a better job of explaining public policies. Therefore, it will be the definition that this thesis will use for the term, "public policy".

Larrue et al. walk us through several additional attributes of public policies. They argue that public policies should include solutions to a public problem - or

problems- that is/are recognized by the politicians and the public and require restructuring of relations between different public, political and private actors (Larrue et al., 2007, p. 26-29). Larrue et al. refer to these actors as target groups and deems it necessary for public policies to have target groups, changes in behaviors of whom, are prerequisites for solving the above-mentioned public problems (ibid.). Larrue et al. also give intentional coherence as an important aspect of public policies (ibid.). They argue that the behavior changes that a public policy enforces should follow causality and should all aim for the same intentions, if not target groups might have problems understanding the policy and complying with it (ibid.). He gives examples in which policies that are not fiscal, such as energy regulations for environmental protection can be understood as fiscal policies if elements, such as a collection of additional fines or fees are shoehorned into the policies without regard to the general composition and intentional integrity of a given public policy and the underlying intention, these policies can be understood as fiscal policies (ibid.). Being perceived as a fiscal policy or a tax is one possible outcome for ETs, which might be a source of vulnerability in some ETs, which shows us the importance of discourse in the initiation of ETs.

Another attribute given to public policies by Larrue et al. is the existence of multiple decisions and activities (ibid.). He argues that a single statement that expresses a stance that is taken and that does not actively try to change any behavior does not constitute a public policy (ibid.). Also as stated above, public policies should have target groups the behaviors of which should be changed (ibid.). Similarly, they argue that public policies must feature formalized measures that enforce behavior change, so according to Larrue et al., formal decisions of not acting on something do not constitute public policies either (ibid.). This might be further

discussed but as this research project will go through policy design choices, whether inaction constitutes a public policy is not within the scope of this project.

2.4 Policy cycle and policy evaluation

As mentioned above, with its many details, public policy is a complex process that features interplay between different actors and other variances that can affect its functioning. To facilitate an understanding of public policies and to be able to evaluate public policies better, different models have been created. One of them is the policy cycle model. The policy cycle is a circular process that tries to summarize what each public policy goes through during its life and it has the following steps; problem identification (of public issues), agenda setting, policy formulation (including policy planning, policy analysis, and policy design), policy legitimization & decision making, policy implementation, policy evaluation, and possibly policy change (through revising after the evaluation) or policy termination (Mwije, 2013, p. 3).

According to Dye, problem identification occurs when different individuals and/or groups make demands from the government (Dye, 2008, p. 31). For example, for emissions policies this would be environmental scientists and environment/climate experts, environmental activists, environmental NGOs, individuals with a keen interest on environmental protection, and media companies making demands on actions to be taken to slow down the climate change. After problems get identified, they get into the political debates and discourse of public officials (Howlett & Ramesh, 2003, p. 13; Mwije, 2013, p. 2). As easy and as straightforward does this last sentence make the transition from problem identification to agenda setting, it is by no means the case in real life. The public

problems that need and try to be on the agenda are almost infinite, but the public agenda itself is quite narrow (Dye, 2008, p. 32; Mwije, 2013, p. 9). Therefore, the passage between problem identification is an essential one but also it is prone to be affected by many different determinants, such as the actors, the actors' interests and power, the nature of the problem, etc. Agenda-setting might be bottom-up (from the public opinion), it might be top-down (by voices of political elites and other prominent figures), and regardless of its directionality, it can be affected by the media (Dye, 2013, p. 35-40). In the EU ETSs case, we will see that this phase of the policy cycle is mainly initiated by the UN, through UNFCCC and the Kyoto Protocol. However, we would expect the EU Institutions to be willing to maintain the climate mitigation policies and EU ETS on the agenda. This was indeed the case, as we will see in the following chapters.

Policy formulation refers to the preparation of policy solutions to the problems on the agenda (Dye, 2013, p. 42). Policy formulation happens in places such as governmental bodies, interest groups, special commissions, and policy-planning organizations (think tanks). EU has many interest groups and institutions, which are consulted at many stops along the way, however, the policy-planning is mainly done by the European Commission.

Although bureaucratic agents have no power to make changes to the laws themselves, they can leave their mark through how the laws are implemented (Dye, 2013, p. 55). Policy implementation is the stage where practical steps such as resource allocation, assignment of specific tasks are taken, all of which can have crucial effects on the effectiveness of the public policy (Mwije, 2013, p. 6). In EU ETS, implementation is mainly done by Member States, and since it is a market structure that requires cooperation from the businesses to monitor their emissions and

trade emissions as needed, businesses can be effective how the EU ETS is implemented as well.

After a policy is made and implemented, the policy evaluation stage kicks in. Unlike other stages, we have real-life data and metrics for gauging the success of the policies, not only in hypothetical debates or consultancy projects but through accumulated data. Through these metrics and the data accumulated, public policies can be gauged in many different aspects, the most important of which is probably, if the public policy was successful in solving the issue that it was intended to solve (Knill & Tosun, 2008, p. 19; Mwije, 2013, p. 7). In light of the evaluations, the policies might go through changes. When policies need to change, the cycle starts from the policy formulation stage anew, with takeaways from the evaluation cycle as positive/negative feedback, hence creating a circular and iterative process (Knill & Tosun, 2008, p. 20; Mwije, 2013, p. 8). These actions are taken when the policy is deemed efficient and effective enough to be improved with small adjustments. When a policy is deemed ineffective or inefficient at solving the problems it intends to solve, or the problem it tries to solve ceased to exist, the policy might be terminated (Howlett & Ramesh, 2003, p. 216; Mwije, 2013, p. 8). EU ETS is a carbon market structure with many phases. Although the multi-phased structure and many of the changes in the upcoming stages were already stipulated in the initiation of the policy, the system went through many changes due to concerns over inefficiency because of an overabundance of emission rights. Moreover, we see that the EU makes changes in the policy to increase ambition along with new emission mitigation goals that have emerged after the initiation of the EU ETS.

The policy cycle model has many strengths. Its most apparent strength is that it makes the policy process easier to understand. The policymaking process is a

complex one with lots of different phases and stakeholders (including the politicians, the public, interest groups, etc.) all of which create different dimensions that need analyzing. As it is, the process is like an amorphous and multidimensional whole with only limited hints as to the beginnings and ends of every single component within (Mwije, 2013, p. 9). What the policy cycle does is to project this multidimensional object into a simplified version, which is a necessary step for us to make sense of the process and analyze it (Sabatier, 2007, p. 4; Mwije, 2013, p. 9). It is similar to projecting a globe to a piece of paper to create a map. We can see where each subprocess within the policymaking process begins and ends (Dye, 2008, p. 31; Mwije, 2013, p. 9). It is good because just like a map, the result is much easier to understand, thereby facilitating studying, analyzing, and brainstorming, and discussing the policy process (Howlett & Ramesh, 2003; Mwije 2013, p. 9-10). We do see an approach from the EU that fits quite well with the policy cycle model, also as mentioned above. Therefore, during analyzing the EU ETS this research will try to differentiate different stages of the policy cycle for a better understanding of the EU ETS.

2.5 Factors that affect policymaking and policy design

As policymaking is a complex process with many components and actors that work in different relations, both the process as well as the final product (i.e., the policy design) are prone to various factors that affect the result. This part of the theoretical framework will go through the most prominent factors that might affect the policymaking process as well as the policy design. We will first go through the factors that affect policymaking and affect policy design indirectly, by affecting the

agenda-setting phase. Following this, we will explore how the policy design is prone to be affected by different factors during the policy formulation phase.

One of the basic parts of the agenda is public opinion. Public opinion might affect agenda-setting in various ways (Dye, 2008, p. 35-40). These ways include voting (both indirectly as in voting for leaders that are likely to have certain policy choices, and directly through referenda), direct communications with the leaders through social media and other channels (although this probably constitutes a relatively small percentage of the electorate effect) and through their participation in events, and support for NGOs, etc. (Dye, 2008, p. 35-40). However, although public opinion might affect the agenda-setting process, public opinion itself is amenable to change by several factors. Two important factors that can affect public opinion are the mass media, and the policies themselves (Dye, 2013, p. 35-43). Public opinion and the agenda can be molded by what news corporations and the press deems as newsworthy (Dye, 2013, p. 40-42). Moreover, as mentioned before, many public policies intended to change the behavior of different actors, including the electorate (Dye, 2013, p. 38). This means that public policies and public opinion feature a relationship in which both affect one another and reinforce the already set agenda for weeks and possibly months or years, to come.

Another factor that affects policymaking by affecting the agenda is, as also mentioned in the paragraph above, the mass media. Mass media includes several types of media including television, radio, and newspapers. Mass media can underline different narratives and phenomena as newsworthy and give them bigger coverage through longer airtime or bigger headlines (Dye, 2013, p. 40-42). By selecting certain events as newsworthy as such, the mass media can influence agenda setting by giving certain topics more screentime. For example, the mass media can

prioritize news on emigration and immigrants over the news about the education systems, thereby increasing the chance of emigration policies becoming the bigger focus on the agenda, compared to the education policies. Moreover, the mass media can also change the political environment by politically empowering people and making them politically active while also forcing the government to be responsive (Swinnen, 2018, p. 51; Besley and Burgess, 2001, p. 4-6; Strömberg, 2004a, p. 265-284). Such an effect is seen by researchers on various topics that concern the public such as disaster relief, unemployment programs, public spending, etc. (Swinnen, 2018, p. 51; Eisesen and Strömberg, 2007, p. 693-728; Francken et al., 2012, p. 486-500; Strömberg, 2004b, p. 189-221). These being said, the mass media is not unbiased. As mass media companies compete with other companies, they tend to focus on the views and circulation of their news for higher revenues. This causes them to make news on topics that are easy to understand, easy to engage with, and most of the time, on more dramatic topics (Dye, 2013, p. 41,42). Therefore, it might be more likely for the mass media corporations to make news on a change in health coverage, than a regulation that affects the working hours of a physician. Similarly, it is more probable for the news outlets to make news on a ban on Diesel-powered vehicles, rather than making news on the accomplishments in emission mitigation.

Both during the agenda setting and policy formulation, there is another major factor that might affect policymaking and the final design, and that is lobbying and influences by interest groups lobbyists and other interest groups can affect policymaking with direct lobbying through investments and providing policymakers and themselves with legislative text to be presented in the parliament, research results and litigation support (Dye, 2013, p. 44). While doing so, the lobbyists and interest groups can help the laws and regulations to be friendlier to them and thus

affecting the final policy design. Examples of lobbies and interest groups are associations (such as medical, dental, etc.), law firms, unions (Valentini et al., 2020, p. 4913), and big corporations (Dye, 2013, p. 44-46). Moreover, along with direct lobbying, interest groups can also affect policymaking and design through indirect lobbying activities, such as personal gifts, schmoozing, etc. (Dye, 2013, p. 44). However, such indirect lobby activities are hard to trace, let alone being analyzed, therefore they won't be taken into in this research project for practical reasons.

However, what are the exact interest groups and how do they affect the policy formulation? Corporations and industries can affect policymaking through lobbying activities and other influences to facilitate policy changes that are helpful to them or impede policy changes that would be disadvantageous for them (Pedersen, 2005, p. 93-95). This is exemplified in a case study by Pedersen, in which she found out that the stringency of Norwegian carbon tax and carbon quota regulations are affected by the ties between the state and the companies that constitute the Norwegian offshore industry. For similar reasons, a country's sectoral distribution might influence its policy landscape. Similarly, associations of different sectors and occupational groups, as well as trade unions, constitute interest groups (Dye, 2013, p. 44-46; Valentini et al., 2020, p. 4913). Associations and trade unions can affect the policy cycle and the final policy design, similar to the companies, that is, facilitating policy changes that are advantageous and hindering policy changes that are disadvantageous for them.

NGOs can also be listed under the interest groups. According to Tortajada, NGOs are actors that try to solve problems and help affected communities as well as other NGOs (Tortajada, 2016, p. 266). Just like the mass media, probably with a lower effectiveness level, the NGOs can act on the policy cycle by affecting agenda

setting, with activities such as fundraising events, protests, research, information support, etc. However, Tortajada argues that they can also influence the policy cycle by affecting policy formulation (Tortajada, 2016, p. 269). For this Tortajada cites an example from water management policies in India, where an NGO alliance, that is led by a local group (ARCH-Vahini), was successful in lobbying for resettlement and rehabilitation projects for the people that would be affected by a dam construction project in the region (Tortajada, 2016, p. 269).

Similar to NGOs, corporations, associations, and trade unions, international and supranational organizations can also be accepted as interest groups. These institutions can also affect the policy cycle and hence the final public policy design. These institutions, according to Di Ruggiero et al. can influence the agenda-setting phase of the policy cycle (Di Ruggiero et al., 2014, p. 5). In their work about International Labor Organization Decent Work Agenda, they found from the informant interviews that the International Labor Organization played an important role in making the “decent work” an important part of the international policy agenda and landscape (Di Ruggiero et al., 2014, p. 5). Another example of agenda setting by international and supranational organizations is the Sustainable Development Goals by the UN, that increased the prominence of sustainability and sustainable development in the international agenda, and agendas of different countries and as well as companies. However, setting an agenda is not the only way international and supranational organizations can affect the policy cycle. The supranational organizations (organizations that limit the sovereignty of their members), such as the European Union can, directly affect the policy of its members by imposing new legislation and directives, such as the European Union Water Framework Directive. International organizations (e.g., the UN) and supranational organizations (such as

the EU), and other countries can also affect the policy cycle and policy design through, policy diffusion (Simmons et al., 2006, p. 787-789).

2.6 Non-actor factors

Accepting a new policy constitutes a change from the beginning position, which means the political landscape of a state before a policy change is not the same as the political landscape after the change. Several factors can affect the success and the facility of these changes. Although EU ETS is not an exact case of policy diffusion, due to the binding nature of EU decision-making, the successful transfer of policies to Member States and the change of policy landscape in Member States can be affected by several factors. Policy diffusion literature provides us with valuable information on what these factors are, and how they affect change.

Policy diffusion is the phenomenon in which the policymaking in one government, affects the policymaking in other governments (Gilardi et al., 2020, p. 1). Although this definition limits the policy diffusion to separate governments, policy diffusion is commonly used within the literature to explain the EU-internal diffusion of policies (Fligstein, 2000; Weibust, 2005).

Policy diffusion is a complex process with different outcomes. The possible outcomes of policy diffusion are convergence, divergence, and inertia (Ladi, 2005, p. 1). Convergence points to a case where different states with different policies move to a case where they share commonalities in a specific policy or political framework (Bennett, 1991, p. 219). Inertia denotes a case where there is a lack of change in a state's policy choices (Ladi, 2005, p. 7). As a result of this lack of change, the source of diffusion and the destination of the diffusion end up having dissimilar policy

outcomes. Policy divergence denotes a case in which the process ends with the source of diffusion and the destination of the diffusion having less similar policies.

Policy diffusion has four main mechanisms which are emulation, coercion, learning, and competition (Simmons et al., 2006, p. 789-801). Among these four mechanisms competition entails the need to harmonize policies to be able to compete with other states better, in many cases economically (Simmons et al., 2006, p. 789-801). Coercion entails forcible acts made by economically powerful countries to persuade the less powerful states or impose specific ideas/policies on them (ibid.). Learning entails a change in beliefs or a change in confidence in existing beliefs after being exposed to other beliefs, ideas, or practices (ibid.). Emulation refers to the social construction of appropriate policies (Gilardi & Wasserfallen, 2017, p.7). Unlike learning, where states get influenced by specific positive or negative examples that make changes in their own practices or ideas, in emulation of the perceived social appropriateness of a specific policy face changes (Gilardi & Wasserfallen, 2017, p. 1). Similarly, Ladi groups the diffusion methods into hard and soft diffusion (Ladi, 2005, p. 1). Soft diffusion mostly includes a discourse-based approach where diffusion mainly happens via communication and imitation (Ladi, 2005, p. 2). Hard diffusion mostly includes a coercion-based approach, where the target of the diffusion can be threatened with an embargo, legal or political action in the case of non-compliance (Ladi, 2005, p. 2). According to literature, both types of diffusion can result in convergence, while hard diffusion has a bigger chance of success (Ladi, 2005, p. 2).

In their paper, Ladi includes five mediating factors for policy diffusion. The first factor is the economic vulnerability of the target state which can increase the chance of convergence (Ladi, 2005, p. 6; Schmidt, 2002, p. 898-900). The second

factor is the political-institutional capacity of the target state, which means the ability to create change and maintain it with established political bodies and institutions. Ladi argues that the political-institutional capacity is directly proportional to the possibility of convergence (Ladi, 2005, p. 6). The third factor that is argued by Ladi to mediate policy diffusion is the policy fit between existing policies and the diffusing policy, she argues that the similarities between already existing policies and diffusing policies can decrease costs for the target state and thereby facilitate diffusion (Ladi, 2005, p. 6). This view is also supported by several other policy diffusion and environmental policy papers (Weibust, 2005, p. 47; Holzinger and Knill, 2005, p. 791). According to these studies, a closeness between an already existing policy and a policy to be formulated increases the success of policy change (ibid.). This phenomenon might also be explained by sunk costs as, if the political landscape before the change is close to the suggested policy result, there would be less cost for the overall change. A supporting case study is done by Weibust, in which dioxin emission regulations of different states are compared. Weibust found out that the biggest dioxin polluters tended to lag most in formulating policies that decrease dioxin emissions (Weibust, 2005, p. 67-69). This might have happened because in the states in which the policies allowed high dioxin emissions, both the public and private actors had more incentive to invest in dioxin-emitting technologies, such as waste incinerators, and implementing policies that limit dioxin emissions, can turn all this investment into a sunk cost, which is a disincentive for having stringent dioxin emission regulations (ibid.).

The fourth factor included by Ladi is the target state's policy preferences (Ladi, 2005, p. 6, 7). If the target state had preferred policies in the past that are similar to the diffusing policy, the converge chance might increase (Ladi, 2005, p. 6-

7). Unlike the fit between existing policies and the diffusing policies, this factor focuses on the political preferences in policymaking, such as reluctance to use market regulations. The fifth mediating factor is the ability to form discourses that can be used by the source of diffusion (EU) to alter how the target countries perceive the other factors that might affect policy diffusion, such as economic vulnerability and policy preferences (Ladi, 2005, p. 7).

A factor that will be used to explain the successful transfer and resilience of EU policies in this project is the EU's supranational nature. The EU, as a one-of-a-kind organization that, in certain senses, mimics a US-like federation but overall provides its members with much higher levels of sovereignty, has caused many debates on the issue of the directionality of its governance. The two different views are the intergovernmental view and the supranational view. The intergovernmental view sees the Member States as the main source of action where Member States act according to their own interests, which aggregate into a common European will (Wettestad, 2012, p. 68,69). In a system where different states act on their own accords, European decision-making and integration become a puzzle that needs to be explained. The intergovernmentalist view explains the cooperation of different actors and European integration with different mechanisms. Wettestad sees the local interest groups and bargaining -both nationally and internationally- as an important part of decision-making (Wettestad, 2012, p. 68,69). Moravcsik explains the European integration in an intergovernmental system, with similar ideas. According to Moravcsik, the sovereign Member States are rational actors that try to maximize their utility (Moravcsik, 1998, p. 3). The interstate conflicts that may arise from these maximization attempts, are solved through bargaining between Member States (ibid.). According to Moravcsik these bargains mostly result in the favor of Member

States with higher relative bargaining power (Moravcsik and Schimmelpfennig, 2019, p. 71). They cite several factors that can affect the relative bargaining power. The first of which is asymmetrical interdependence, which means the unequal distribution of gains from a policy proposal to different Member States (ibid.). The other factor cited is the information that each Member State possesses on the preferences of other states (ibid.). According to Moravcsik and Schimmelpfennig, the states that have less gain from a specific policy change can force the states that have a greater gain possibility to make concessions by threatening non-cooperation (ibid.). Moreover, the states with greater knowledge of the preferences of other states, can also more easily tip the bargaining to their own advantage (ibid.).

After the bargaining processes states end up getting different amounts of gain. In order to secure these gains states, give some of their authority to institutions, like the European Commission, to check and balance that the agreements and the resulting gains are safe (Moravcsik, 1998, p. 4). In some policy areas where the Member States have a bigger chance of defection, such as the Common Agricultural Policy or certain monetary policies, the Member States delegated even more authority to EU institutions, for example with the use of qualified majority voting instead of unanimous voting (ibid.).

The other view of EU governance is the supranational view. Supranationalism, in the context of the EU, is defined by the ability of EU institutions to make binding rules in any policy and sector for all the Member States (Sweet and Sandholtz, 1997, p. 297). This mode of governance argues that the power and the authority in the EU to have centered on the EU institutions, and the Member States follow the rules provided by the EU institutions, thereby creating a more top-down form of governance that curtail Member State sovereignties in the relevant

sectors and policy areas. Although supranationalism and intergovernmentalism can be understood as a continuum and Member States have differing amounts of say in different policy areas, some oft-cited EU organizational design choices make the researchers think of the EU as a more supranational system. For example, the use of qualified majority voting, instead of unanimous voting is given as an example that shows that the EU is more supranational in some policy areas (Wettestad, 2012, p. 70). For example, the tax policies require unanimous voting while many environmental policies mostly require qualified majority voting. Moreover, the Council of the EU shows a predisposition to avoid using veto as much as possible (Wettestad, 2012, p. 70). This leads the Commission's preferences to have an increased effect on the final policy design. Moreover, it is argued that increased internationalism in economy and business can also increase supranationalism as multinational companies are more willing to bargain with international institutions such as the EU than the individual Member States of interest (Wettestad, 2012, p. 70). Wettestadt et al. provides us with a study that goes through EU-internal policy diffusion (vertical diffusion) in three different policies which are EU ETS, internal energy market policy challenge, and Directive on Renewables (Wettestad, 2012, p. 67). They found out that, in cases where Member States think cooperation is the better outcome, the Member States tend to be more acceptive to the idea of supranationalization of a specific policy area (Wettestad, 2012, p. 82,83). The research points out that the pilot phase of the EU ETS was deemed unsuccessful due to very low carbon allowance prices and harmonization of the market was seen as a possible solution, leading the ETS design to be more supranational through increased Commission control (Wettestad, 2012, p. 79-81). Through this increased supranationalism, Commission and its environmental policy ambition could be

translated into policy outcomes. Moreover, the increased supranationalism can allow EU institutions to work with EU-centric goals, creating a bigger team spirit. For example, an EU Parliament or Council in which the members vote with a focus on their nationalities might increase the number of partisan veto points, making these institutions more fragmented. However, if a look at the EU institutions shows us an increased level of supranationalism and a European focus, then we can say that supranationalism did indeed lower the number of veto points by decreasing the number of partisan veto points.

In this theoretical framework, we have looked through different aspects of institutionalism. We have seen that along with game theory, rational choice institutionalism provides us with many insights into the formation and implementation of emission mitigation policies. They show us that in the absence of any reciprocal mechanisms, freeriding and inaction are the expected outcomes. However, the EU might be providing the Member States and their internal stakeholders with mechanisms as such, which caused the viability and resilience of the EU ETS. Looking at the game theory we would expect any channels of information between the stakeholders or Member States, or any punitive action taken by the EU Commission would increase the resilience of the EU ETS. Moreover, any change in the policy or organization structure that reduces costs can also push the actors for accepting the EU ETS and complying with it. Rational choice institutionalism would also suggest that changing the number and location of the veto points of the system could have made EU ETS more resilient. Lastly, discursive institutionalism would argue that an ETS-supporting discourse in EU Institutions could have facilitated the initiation of the EU ETS while making it resilient. These all mean that we would expect any reciprocating, punitive, or communicative action

taken by the EU Commission or other EU institutions to increase the viability and resilience of the system. The lack of veto points would, on the other hand, ensure two effects. Firstly, it would make sure that the mentioned actions could be taken with no to few preventive forces by other actors. It would also make sure that EU ETS-supporting discourse can influence all the stakeholders with no competing alternatives. These point out to us that supranationalism and the lack of additional veto points could be used as explanatory points for the successful initiation of EU ETS and its successful implementation by different Member States and stakeholders. Therefore, this research hypothesizes that the increased supranationalism and ETS-supportive discourse are responsible for the viability and resilience of the EU ETS.

CHAPTER 3

METHODOLOGY

This research unearths the effects of the level of supranationalism and climate change-ambitious discourse of the EU institutions on the viability and resilience of the EU ETS. In order to do this, we will go through the design choices of the EU ETS, the organizational structure of the EU, debates between the EU institutions, and several stakeholder reports to see any increase in the supranationalism, and to explore any other factor that might come up during the research that can be shown to increase resilience. For these goals, the research will employ a qualitative approach with a mixture of different methods.

To report on the EU ETS's design choices and the policy framework of the EU ETS preceding the initiation of the EU ETS, this research makes use of qualitative analysis of the climate change-related EU legal texts that precede the EU ETS and legal texts that are directly about EU ETS. We will also go through secondary sources such as other research in the literature, 13 reports about ETSs, and information from International Carbon Action Partnership (ICAP), as well as the information that is shared directly from the EU's official web pages and 3 EU press releases.

In order to gain information on the organizational structure of the EU, we will use the existing literature, but also non-legal information shared through EU web pages. Looking at these, we will try to unearth organizational structures that might have been making the structure of the EU more supranational. Moreover, we will go through how a decision is taken and what can the EU do, to ensure enforcement.

Although this research is not a discourse analysis, it will make use of EU-internal debates to see patterns in the EU-internal discussions beginning before the initiation of the EU ETS, until the end of the pilot phase. The research will qualitatively analyze plenary debates of the EU between the years 1997 and 2008, that feature the phrases “emission trading” or “emissions trading” at least once. The reason for this limitation is that the size of the climate change-related discussions in the EU plenary debates, without such a limitation, is too big for research that uses EU discourse as an additional method. However, a discourse analysis with a larger chronic scope and with a laxer content restriction, such as all of the climate-/environment-related discussions, could be a quite insightful addition to the literature that can be made in the future. The reason for having used the plenary debates is that they include members of parliaments, some members of the Council as well as the president of the Commission, thereby giving us information about the stances of all EU actors. Moreover, unlike some other debates, such as the Council-internal debates, plenary debates are open to the public with no limitations.

To find information about stakeholders, this research will qualitatively analyze other research projects in the literature that go over different stakeholders of the EU ETS. Although this data source is not expected to give us information about the level of supranationalism or the discourse of the EU institutions, it can provide us with the wills and preferences of different stakeholders, which can explain the reasons for resilience.

In the discussion section, we will compare EU ETS with ETSs that we classify as unsuccessful. These include ETSs that were terminated during the policy discussions or the ETSs that were shut down before even starting to fully operate, such as the Australian ETS, and ETSs of several Canadian provinces. It will also

include Kazakh ETS which needed to be suspended due to a market crash. We will gather information about these ETSs from existing studies in the literature. We will use these cases to find out the reasons for the instability of those systems and see if the EU ETS has gone through the same issues. If so, we will try to answer how the EU ETS design, or EU-internal discourse and organization of the EU did help the EU ETS to survive them.

CHAPTER 4

EMISSIONS TRADING SYSTEMS AND FORMATION OF THE EU EMISSIONS TRADING SYSTEM

In order to slow down, and possibly reverse the climate change process, many states work in coordination. One of the biggest acts of cooperation that have helped the actors set their carbon mitigation goals was the Paris Agreement. According to the Paris Agreement, the global average temperature cannot be allowed to rise more than 2°C or optimally not more than 1.5°C compared to pre-industrial carbon levels, to alleviate the risks of climate change (Paris Agreement Article 2/a).

Paris Agreement does not force any single way for the signatories to achieve the aforementioned goals. States are free to choose any way they see fit to achieve their mitigation goals, as long as it does not contradict other tenets of the convention such as sustainability and eradication of poverty. Given this freedom, states were free to choose different mechanisms for mitigation such as carbon taxes, efficiency regulations, market-related solutions, etc.

As we look at the mitigation mechanisms of different countries, we see increasing popularity in market-based solutions such as emissions trading schemes, in comparison with regulation-based solutions such as taxes and fines. There are many different reasons for this phenomenon, which will be detailed in this chapter. Shortly, the reasons can be enumerated as, the predominance of free-market practices and ideals, societal challenges of implementing taxes, and political challenges of implementing taxes.

With the influence of neoliberalism and free-market ideals, market-based solutions are being perceived as better solutions compared to prescriptive

regulations. Prescriptive regulations tend to be perceived as ineffective, counter-innovative, costly, and hard to implement, in comparison to market-based solutions, to begin with (Freeman et al., 2006, p. 3). This perception is also strengthened by positive experiences from successful examples. The Acid Rain Program of the US Clean Air Act is one such example that bolsters the positive perceptions and mentioned benefits of market-based solutions over prescribed regulations (Siikamäki et al., 2012, p. 1). Acid Rain Program of the US was one of the first large-scale, major market-based solutions directed at the air pollution and also the first emissions trading system. The program targeted sulfur dioxide (SO_2) and nitrogen oxides (NO_x) which cause acid rain (National Geographic Society, n.d.). The program is accepted as successful as it helped to decrease sulfur dioxide and nitrogen oxide levels considerably, compared to the counterfactual values (Tietenberg, 2006, p. 75). Moreover, by charging the companies with penalty charges that are more expensive than the marginal cost of carbon reduction, the program had a quite high compliance rate (Stavins, 2003, p. 26). It is also argued that the program reduced air pollution-related deaths in the US by 5% over 10 years (Barreca et al., 2017, p. 5). These positive results made the Acid Rain Program an exemplary case that is cited by the proponents of market-based solutions.

Proponents of the market-based solutions argue that, while prescriptive regulations enforce the same or similar mitigation goals with no regard to the specifics of each company, market-based solutions include marginal costs to the calculation (Freeman et al., 2006, p. 5). This means a specific amount of abatement can be harder for one company than the other, because of differences in size, sector, or location, so the costs of mitigation differ accordingly. This makes the marginal cost of abatement different for each company. Companies may account for such

differences more effectively, compared to states. One of the reasons for that is the ease of access to sectoral knowledge that the companies possess. Companies are more informed about the sector they are working in than the governments. States, on the other hand, need extensive research in order to create effective regulations. This makes the process of creating a new regulation costlier. Companies' reluctance to share any information, the disclosure of which might result in their disadvantage, increases the time and money expenses involved in the process (Freeman et al., 2006, p. 5). Coming back to the case of the Acid Rain Program, Ellerman analyzes how the market-based nature of the program made it easier and more cost-effective for the Environmental Protection Agency during the preparation of the program. He argues that if the Acid Rain Program had a prescriptive-regulative nature, the Environmental Protection Agency would need to translate the goals and intents into "specific, concrete and enforceable objectives" that would be applied to different sources of sulfur dioxide and nitrogen oxides (Ellerman, 2006, p. 52). This would increase the cost and decrease the pace of regulation. The EPA only had to work on setting up reporting, monitoring, and accounting systems to ensure implementation and enforcement (Ellerman, 2006, p. 52). This real-world example shows us how market-based regulations can help reduce time and expense in the early stages of implementation, making the system more cost-effective, while also reinforcing the current positive perception of market-based solutions.

In addition to the above-mentioned factors that impede the implementation and success of prescriptive regulations, two additional political barricades might further impede successful implementation. One of them is the perceived negative impact on competitiveness (European Environment Agency, 1996, p. 9). Prescriptive regulations, especially when they fail to account for marginal cost differences, might

harm the competitiveness between companies. Unequal marginal costs for abatement might directly put certain firms at a disadvantage, while putting others indirectly into overly-advantageous positions, unbalancing the existing levels of competition. This effect enforces the already-mentioned negative perceptions of prescribed regulations. Theoretically, market-based solutions could have similar effects, but companies can more easily avoid such an effect given the fact that market-based solutions give companies more freedom.

The last reason that one can list for the predominance of market-based solutions is the differences between voting and enactment processes of regulations in certain legislations. Enacting prescriptive regulations, which also take part in fiscal policy, such as a carbon tax, might require a higher political force than market-based solutions. An example of this difference can be seen in the EU. In the European Parliament, fiscal measures, such as the introduction of a new tax, require unanimity during voting (ibid., 9). Market-based solutions, such as emissions trading, do not require unanimity, which is much easier to achieve. This effect seems to have played a role in the EU's enactment of an emissions trading system, but since this effect results from a specific rule of the European Parliament, this does not affect all governments/supranational organizations. However, since the emissions trading system of the EU is currently the largest and one of the most influential emissions trading systems, this effect has been included in the list, nevertheless.

Because of the above-mentioned factors, market-based solutions are more popular as policy choices while dealing with the emissions problem. Among these market-related mechanisms, the ETS is one of the most used and influential choices of policy. Therefore, this chapter will delve into the details of emissions trading systems, including their strengths, weaknesses, and design differences. This chapter

will make use of different cases of emissions trading systems to have a general picture of all the emissions trading systems.

4.1 General reasoning and basic functioning mechanism of ETSs

Emissions trading systems mainly work with making the right to emit a tradable commodity. In such systems actors (individual countries in an international ETS / individual companies in a country / an individual factory of a company) gain rights to emit certain gasses through permits. These permits are called allowances in many systems. Allowances can mostly be traded. In some systems, they can also be banked, borrowed, or saved for future use. Actors must surrender their allowances as they emit. Failing to limit emissions to an amount that can be paid by the allowances, has consequences.

In most of the ETSs, the trading of emissions is accompanied by a cap. Hence such systems are referred to as “trade systems”. A cap refers to the total amount of emission that is allowed for parties of the ETS to emit (“How cap and trade works,” n.d.). The cap is then divided into allowances which are allocated to the emitters (ibid.). In most ETSs, the caps are lowered regularly (ibid.). This ensures that the emitters get fewer allowances to surrender and hence they will have less right to emit.

4.2 Historical background of the EU ETS

Before going into details about how the EU ETS was designed, implemented, and sustained, we need to first look through the historical background of the EU ETS. Going through the historical background of the EU ETS can give us the necessary historical and political scope to make sense of the system, its design, and its implementation.

EU has been leading environmental discussions and taking initiatives long before the initiation of the EU ETS. One of the early legal documents that can be found is the Declaration of the Council for *Programme of Action of the European Communities on the Environment* (European Council, 1973). It dates to 1973 and focuses on air and water pollution without a focus on climate change. Debates around climate change and EU climate change policies have been around for about two decades before the adoption of the EU ETS. One of the first official mentions of climate change as an issue can be tied back to a Council Resolution in 1987 (OJ C 328, 1987, p. 1). This resolution directly mentions climate change as an important issue in the agenda (ibid.). It also delineates the details of the *Second R&D Framework Programme 1987-1991*, which includes climatology and climate change due to increased atmospheric carbon dioxide in its agenda (O.J. C 328, 1987, p. 1). This was then followed by the formation of an interservice group by the Commission to focus on ideas and action plans for the anthropogenic buildup of greenhouse gasses communication (European Commission, 1998b). In 1988, as a result of this research, the EU Commission, prepared a document called *The Greenhouse Effect and the Community* (ibid.). It focused on the importance of improving the implementation of already existing conventions on air ozone depletion, which are Montreal Protocol and Vienna Convention (ibid.). It also urges the Commission to

initiate study programs for policy options, and the European Community to engage in relevant research programs (ibid.).

While these were happening in the EU, other international bodies were also continuously getting louder on the climate change issue. In 1988, Intergovernmental Panel on Climate Change was founded by UN Environment Program and World Meteorological Organization, which boosted the debates around climate change as an issue and the policy choices on a global level (Skjærseth et al., 2008, ch. 1). At this point, the EU has shown initiatives to show its willingness to act on the issue. On this line, in 1990, the EU's Energy Council and Environment Council decided on speeding up the climate change mitigation action by aiming to keep the level of emissions in 2000 by 1990 levels (Skjærseth and Wettstad, 2016, ch. 1; European Council, 1990).

In 1991, the European Commission presented a new communication, named *A Community Strategy to Limit Carbon Dioxide Emissions and to Improve Energy Efficiency*. This communication acknowledges climate change as a priority issue and puts forward different solutions, which it neatly divides into RD&D (research, development, and demonstration) programs, sectoral measures, other types of regulatory, monetary, or voluntary measures, and complimentary national programs (European Commission, 1991, p. 12). Many of the solutions presented are either updates to already existing policies or too sector-specific and hence, outside the scope of this research. However, the communication argues that fiscal measures are important for cost-effective methods of emission mitigation, and it also points out that renewable energy production is unlikely to be invested in and improved if it is not made favorable (European Commission, 1991, p. 19). On a similar note, the communication argues that putting a price signal to energy is a necessary step to

achieve these goals, as the private sector is highly unlikely to take action, considering the cheap energy prices (ibid.). For these goals, the communication recommends a new carbon tax (ibid.). The communication, however, wasn't accepted until after the United Nations Conference on Environment and Development of the year, and even then, a significantly less stringent version was accepted (Skjærseth and Wettestad, 2016, ch. 1). Especially the carbon tax resulted in huge outrage and lobbying activities, where some energy companies even communicated to the Member States that they would not work on hitting the efficiency targets if a tax is introduced unilaterally (ibid.; Newell and Paterson, 1998, p. 684). The discussion of the tax was also around its controversy, as it was seen as incongruous with Member State autonomy, and thus they should be avoided even when the taxation serves an important goal, such as emission mitigation (Convery, 2009, p. 392). Since fiscal measures required unanimity in voting, for the carbon tax to be passed, no Member State should have vetoed it, which wasn't - and possibly would not ever be - the case (ibid.). Expectedly, the businesses and industry lobbies, as well as the Union of Industrial and Employers' Confederations of Europe strongly opposed the tax, causing the tax proposal to be taken off the table in 1997 (Convery, 2009, p. 393). This shows us that the unanimous voting procedure, allowed each Member State to become a veto point for the carbon tax proposal. This provided local lobbying activities with a bigger chance to affect the general functioning of the EU. For these reasons, the carbon tax which has been the preferred policy option to begin with, has been unviable in the EU setting.

Withdrawal of the carbon tax is one of the reasons why a cap-and-trade system was the choice. However, other sub-steps lay between the withdrawal of the carbon tax proposal and the adoption of the cap-and-trade system. These steps were

setting up the emission goals and introducing market-based solutions to emission mitigation debates. The setting up of the goal includes two important events. The first was the United Nations Conference on Environment which happened in 1992 and resulted in the establishment of UNFCCC (Skjærseth and Wettestad, 2016, ch. 1). UNFCCC included loosely binding goals of emissions reductions, that is to decrease the emission levels of Annex 1 countries to 1990 levels by 2000. The second action in setting up goals is the Kyoto Protocol. As the preceding chapter goes through, Kyoto Protocol is one of the earliest forms of operationalization of UNFCCC and provides its parties with binding goals. However, Kyoto Protocol also introduces flexible mechanisms. These are mechanisms that the parties -or carbon-emitting entities- may resort to, in order to easily fulfill the emission mitigation goals. These include; the creation and protection of carbon sinks (e.g. forests), involving in the Clean Development Mechanism (CDM) and Joint Implementation (JI) projects and making use of the resulting credits, or involving in an emissions trading scheme (“Kyoto Protocol”, n.d.). The EU, however, one of the earliest and the biggest implementers of emissions trading was not on board with the inclusion of emissions trading as a flexible mechanism. The main reasons for the distrust against the ETS were the belief that it would be impractical and that it would allow some countries to buy their way out, through the purchase of “hot air” (Skjærseth and Wettestad, 2016, ch. 4). The hot air refers to carbon emission rights that are allocated to former Soviet Union members through their Kyoto targets, who now emit much less, after the dissolution of the Soviet Union (Ebeling and Fehse, 2009, p. 14,58). Now, these countries have carbon emission rights and credits that do not truthfully resemble their actual emission needs, these superfluous emission rights can be sold to richer OECD countries, which would create new emission rights and allow the richer

countries to buy their way out which overall would decrease the carbon prices and compromise the environmental integrity of the emissions trading systems (Skjærseth and Wettstad, 2016, ch. 4). However, acceptance of emission trading was a popular idea for the US delegation -led by Al Gore- and they were quite persistent about it (Convery, 2009, p. 393). Along with the will to have the US -one of the biggest emitters- among the parties to the Kyoto Protocol, much to the chagrin of the EU, emission trading was also included as a flexible mechanism (ibid.). The emissions trading was also supported by many industrial bodies, including the Union of Industrial and Employers' Confederations of Europe and British Petroleum, which even designed an internal trading system (ibid.).

These developments led the EU Commission to consider an emission trading system as a possible tool for achieving reduction goals posited by the Kyoto Protocol. For example, the 1998 EU Commission Communication, not only positively mentioned the possibility of using credits from Clean Development Mechanism and Joint Implementation, but it also argued that European Community-wide trading can be easier to implement (European Commission, 1998a). The Commission also adds that the Kyoto Protocol's own emission trading will not start before 2008, and suggests setting up an EU Community-wide ETS starting in 2005, demonstrating additional ambition (ibid.). A 1999 EU Commission Communication takes an even a more ambitious stance and gives more detail on a possible ETS and EU's roles in implementing the Kyoto Protocol. Firstly, it argues the importance of the EU to continue taking the lead in implementing the Kyoto Protocol (European Commission, 1999). It also acknowledges the pilot ETSs that are discussed by several Member States (ibid.). The communication also points out that in 2000, the

Commission plans to consult with different stakeholders, including Member States, NGOs, and businesses for policy choices for a possible ETS (ibid.).

In March 2000 the EU Commission presents the *Green Paper on greenhouse gas emissions trading within the European Union*. In this Green Paper, we see many aspects of how the EU Commission sees the ETS and what will be its next moves. It starts with the burden-sharing agreement. The Green Paper cites Article 4 of the Kyoto Protocol, which makes it possible for the EU to work in cooperation, in reaching the Kyoto goals, which is called the burden-sharing agreement (European Commission, 2000, p. 9). According to this, the EU states should reduce their aggregate emissions by 8% from 2008 to 2012 (European Commission, 2000, p. 4-5). The Green Paper argues that with the current trends, the EU community is not likely to achieve its Kyoto goals and it also points out that emissions trading can be an effective and cost-efficient way of achieving the goals (ibid.). The Green Paper also points out that ETSs can be quite complex, and the EU should learn how it is done first, thus they propose a learning-by-doing approach in which a community-wide ETS, possibly along with other individual ETSs, should start to operate by 2005, giving the EU the chance to learn by doing, before the start of the Kyoto Protocol compliance period (European Commission, 2000, p. 10). Although the Commission accepts the possibility of individual ETSs run by Member States and acknowledges the proposals for Denmark's ETS and the UK ETS and finds them as meaningful experiences in line with the learning-by-doing approach, it also provides us with many arguments why the EU Community should have a single market (European Commission, 2000, p. 10-11). The first point that the Commission provides us with, is the need for harmony in ETS emission reduction goals as well as in rules regarding monitoring, reporting, and verification of emissions, which are

needed for building an effective and efficient ETS that can ensure the EU to meet its goals (European Commission, 2000, p. 4-5). Separate markets by individual states can also achieve this goal by communicating with one another but the Green Paper points out that a community-wide market can achieve this goal easier (ibid.). Lastly, the Green Paper also argues that the emission mitigation goals can be achieved in a much more cost-efficient manner and estimates around €1.7 billion in savings would be made in the case where an EU-wide ETS is preferred, compared to a case where various smaller markets strive to meet the Kyoto goals all at once (European Commission, 2000, p. 11).

The tides were turning in favor of the formation of an EU ETS, with increased positive discussions around ETS as well as, efforts of the EU Commission and Climate Director-General Jos Delbeke (Convery, 2009, p. 405). Moreover, many Member States were on board with an ETS, and Member States like Denmark and the UK were considering establishing their own markets, which was also forcing the Commission to make haste, to avoid decentralization of the market (Convery, 2009, p. 406). However, not all EU states were on board with ETS, for example, Germany who has later become a strong proponent of the idea of emissions trading was not wholly on board with the idea (Convery, 2009, p. 402). Germany and the German industry stakeholders were not inclined to use ETS as a method of emission mitigation. Since Germany is a major emitter, this was an issue for the effectiveness of the ETS. However, first, the German government and then the industry ceased to be skeptical of ETS. One of the main reasons for this change might be the numerous communications made to Germany and German industry stakeholders, many of which are initiated by Jos Delbeke- about the benefits of an EU-wide ETS (ibid.). Even more decisively, the Green Party considerably increased its number of seats

after the election, which was more supportive of ETS (*ibid.*). Moreover, some changes were made in the planned EU ETS design to make it fit German industry stakeholders' liking, such as making the allowance allocation process run at the Member State level -instead of the EU level- and making the allowance allocation free of charge (*ibid.*). Several scholars also use a path-dependent lens to explain the increasing power of the Green Party and hence Germany's change of tone against ETS. It is pointed out by many scholars that flooding in Danube and Elbe rivers – killing several citizens along the way- was used by the Green Party and SPD as an argument for the existence and the importance the climate change, and hence might have indirectly caused Germany to start supporting the ETS (Skjærseth and Wettestad, 2016, ch. 5; Convery, 2009, p. 408).

One of the last events that participated in the turning of the tides in favor of ETS was from the US. Emission trading systems were introduced into Kyoto debates and were seen as a precondition for US ratification of the Protocol; therefore, they were included in the protocol. However, in 2001 US officials announced that they will not ratify the Kyoto Protocol (Phillipson, 2001, p. 288). This was a problem for the Kyoto Protocol in many ways. For Kyoto Protocol to take effect, it needed to be ratified by at least 55 states (Kyoto Protocol to the United Nations Framework Convention on Climate Change, p.18). The ratified states should also account for at least 55% of the 1990 emissions of Annex I countries, for Kyoto Protocol to come into force (*ibid.*). Since the US was the biggest emitter at the time of ratification, its rejection of the Protocol, meant that the future of the Protocol was not clear (Phillipson, 2001, p. 291). Moreover, the US's rejection of the Kyoto Protocol would also undermine the success of the Kyoto Protocol in decreasing the levels of anthropogenic greenhouse gas emissions. Responsible for about 24.2% of the

emissions, the EU not only needed to ratify the Kyoto Protocol but also convince many states to do the same for Kyoto Protocol to come into effect (Schreurs et al., 2007, p. 23-24). This position, also stressed with the EU's prominent economic size and emission volumes in the absence of the US, gave the EU a motive and a possibility to lead the way to Kyoto Protocol's survival. Moreover, as mentioned in the paragraphs above, the EU has been building up its policy framework for environmental, emission mitigation-related policies before Kyoto Protocol. For example, the joint communication in 1990, has already provided the EU with emission reduction goals long ago (Schreurs et al., 2007, p. 23). This shows us that assuming the forerunner role in Kyoto Protocol was in parallel with EU's policy path leading to Kyoto Protocol. As can be seen in the Green Paper and the Commission Communications leading to it, ETS has been the policy of focus for the EU, since 1998. Therefore, it is not unexpected for the EU to choose ETS as its method for emission mitigation, even after the US was out of the Protocol.

After all the communications and the Green Paper, and having convinced Germany, US's withdrawal accelerated the process for EU ETS even more. In 2001, EU Commission officially introduced a directive proposal for emissions trading, called *Proposal for a Directive of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowance trading within the Community and amending the Council Directive* (Skjærseth and Wettstad, 2016, ch. 1; Christiansen and Wettstad, 2003). While giving the necessary definition and ground rules, the directive also includes several design choices for the non-compliance period (or the pilot period between 2005-2008). According to these only CO₂ emissions are to be taken into consideration and all the allowances should be allocated, free of charge (European Commission, 2002).

The directive points out that allowance allocation methods and sectoral/GHG scope can be changed before 2008 while hinting that these gases can be included in the scope: methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride (ibid.). The directive was officially adopted by the Commission in 2002 (Skjærseth and Wettstad, 2016, ch. 1).

Although the EU ETS discussions mostly mention the use of CDM and JI credits, their addition to the design was made with a separate document. Directive 2004/101/EC, reiterates the importance of allowing the use of credits from JI and CDM for increased cost-efficiency, and parallel with the Green Paper and also the directives leading to EU ETS, it is argued that collaboration of the European community as a whole while using these credits, can make the link more effective, compared to a case where the Member States act individually (OJ L 338, 13.11.2004, p. 18-19). Member States are, however, responsible for making sure the CDM and JI projects that they run are correctly fulfilled and are in accordance with the guidelines of the Kyoto Protocol and UNFCCC (ibid.).

Lastly, before EU ETS could become operational, the Member States were asked to provide the Commission with National Allocation Plans (NAPs) (Zetterberg et al., 2004, p. 1). In these plans the Member States are expected to share details on how they will implement the EU ETS. The details they need to include in NAPs include, the total amount of carbon allowances will the Member State allocate, how will those allowances be allocated, and the planned use of CDM and JI credits (ibid.; OJ L 338, 13.11.2004, p.18-19).

4.3 The political and organizational structure of the EU

Looking at the years before the initiation of the EU ETS, we can see that the European Commission has played a prominent part. However, in order to understand how the EU ETS was designed, accepted, implemented, and enforced we need a greater understanding of the EU institutions. How do they work together? Who decides on what? Who oversees implementation and enforcement, and what are the veto points that originate from the organization structure of the EU? Knowing these can help us decide, which actors acted how in the initiation of the EU ETS and how did they work to keep it operational.

The EU has many institutions, the most prominent ones are the EU Commission, the EU Parliament, the Council of the EU (also referred to as the Council of Ministers), the European Council, and the European Court of Justice. Although there are other institutions of the EU, such as the European Central Bank or the European Ombudsman, they will not be focused on in this chapter, as they take much less action in decision-making, implementation, or enforcement.

The EU Commission is an institution that works in creating the EU's general strategy ("What the European Commission does," n.d.). It proposes new EU laws and policies, monitors their implementation, and manages the budget (ibid.). The EU Commission does not make decisions, it instead sets the agenda and focuses on the strategic development of the EU (McNaughton, 2018, p. 214). To set the agenda, they make discussions and come up with policy suggestions which are called initiatives (ibid.). The policy initiatives go to the Council of the EU and the European Parliament and are voted on (McNaughton, 2018, p. 215). In other words, although EU Commission is not a decision-making body, it is where most of the ideas and

innovations come from, which allows it to set the agenda in many different policy areas.

The initiatives are not the only ways the EU Commission brings in new ideas or sets agendas. The EU Commission also makes research and consultations and writes white papers and green papers on important agenda items in which it shares its findings, ideas, and goals on the specific issue. The green papers aim to start discussions within the EU on specific policy issues (“Green Paper,” n.d.). White papers do a similar job but also include proposals for the EU for action in different policy areas (“White Paper,” n.d.). The Commission makes consultations both in order to prepare its green papers and white papers, and also to propose initiatives. Sources of consultation and other information include governments of the Member States, prominent politicians from the Member States, pressure groups, political groupings of the parliament, and some senior members of Member States’ bureaucracies (McNaughton, 2018, p. 217,218). The fact that the Commission conducts consultation sections, makes research and writes publications tell us that it is much more than an agenda setter. By making research and consulting others, it provides a channel for the flow of information from researchers and various stakeholders to EU institutions.

The EU Commission consists of commissioners (one from each Member State) and a president, who is -during the writing of this thesis- Ursula von der Leyen (“European Commission,” n.d.). Unlike many of the heads of different institutions of the EU, Ursula von der Leyen seems to have great popularity with the general population. Although her personality or productivity might be one of the reasons for this popularity, some qualities arise from this job title itself. The President of the EU Commission is the person responsible for the presentation of the policy suggestions

and they can also directly contact the ministers and heads of government of Member States as well as other international organizations for discussion or consultation (McNaughton, 2018, p. 216). This means the president is a quite powerful figure both in the EU Commission and in the general organizational structure of the EU. This is important because it tells us that an overly active or determinate EU Commission President can make a difference in many of the processes and in setting the agenda.

European Parliament is a political forum for debate and decision-making (“Welcome to the European Parliament,” n.d). European Parliament works in collaboration with the Council as co-legislators, they can adopt and amend proposals and decide on the EU budget (ibid.). Other prominent tasks of the European Parliament are supervising the European Commission and several other EU bodies and working in cooperation with the Member States’ parliaments to get their input (ibid.). Although the European Parliament has many powers itself, it needs to act in collaboration with the Council of the EU while approving many of the proposals. This process will be explained in greater detail later since it runs in great collaboration with the Council of the EU. Let us first finish going through the organizational structure of the European Parliament. The European Parliament consists of members who are called MEPs (Members of the European Parliament). The MEPs, however, can take up different roles including the presidency, or being members of other sub-groups such as political groups, committees, delegations, political bodies, and intergroups (“The president of the European Parliament,” n.d.). The President oversees the European Parliament and the internal debates (ibid.). The President also has an important role in the above-mentioned co-legislation process. The President explains the European Parliament’s stance in the European Council

meetings (ibid.). Presidents of both bodies need to sign the decisions of the said meetings (ibid.). MEPs are selected by the votes of electorates of the Member States. Therefore, it can be said that the European Parliament has a democratic/political mandate from the general electorate of the EU, something that the Commission lacks. However, the alliance of MEPs and how the votes translate to representation is not straightforward. The reason behind this is that MEPs represent both a country and a political group and their functioning can be the result of the interplay between these two (McNaughton, 2018, p. 220). For example, an MEP from the Green Party might be more inclined to see environmental problems with an EU-wide focus, however, a conservative MEP might see the issue with a focus on their own nation's interests (ibid.).

As mentioned before European Parliament is not only divided based on political groups, MEPs also take up different roles in which they set different groups that act differently. One of them is the committees. Committees are the subgroups within the European Parliament, that work for the European Parliament's plenary sittings with a focus on their specific policy areas ("The committees of the European Parliament," n.d.). Committees go through policy proposals and initiatives and at the end, they prepare legislations that gets voted on in European Parliament's plenary sessions ("European Parliament", n.d.). There are 20 main committees -one of which focuses on Environment, Public Health, and Food Safety- but the European Parliament can open up new committees temporarily ("List of committees", n.d.). Similar to the European Commission the European Parliament's committees can also prepare reports to feed discussions -mainly the plenary sessions- ("The committees of the European Parliament", n.d.). Although European Parliament has other organizational groupings like political bodies and delegations, they are not directly

relevant to plenary sessions or discussions. Another type of grouping that might be relevant however is intergroup, which are groups between MEPs -they can include MEPs from different committees or political groups-, and they aim to increase informal exchanges between MEPs and promote contacts between MEPs and civil society on specific interest areas (“The intergroups of the European Parliament,” n.d.). Some of the intergroups include Biodiversity, hunting, countryside; Climate change, biodiversity and sustainable development; Sustainable, Long-term investments & Competitive European Industry; Green New deal; Trade Unions (ibid.)... The intergroups are not official Parliament bodies, therefore they do not need to reflect Parliament’s opinions in their entirety (ibid.). However, along with the relevant committees and interest groups, EU Parliament has many outlets and groups for discussion of issues with an environmental lens. Coupled with political groups like the Greens-European Alliance, the EU parliament itself has many different groupings, that aim to adopt an environmental lens. This might be playing a role in making the EU Parliament more environmentally ambitious.

The next relevant body we will go through is the Council of the European Union, which is informally also called the Council of Ministers. Its main responsibilities are negotiating and adopting EU laws (through a co-decision procedure with the European Parliament), coordinating Member States’ policies (in policy areas where EU-wide unity is seen as important including economic/fiscal policies, education/culture/youth/sport, and employment policies), developing the EU’s common foreign and security policy, concluding international agreements, adopting the EU budget (“The Council of the European Union,” n.d.).

What is the structure of the Council of the EU? As the informal name - Council of Ministers- suggests it is a council made by ministers of all Member

States. Ministers work in 10 configurations depending on the policy area, and then they discuss and vote on issues based on the interests of their own nation, as well as the EU (ibid.). Configurations include “agriculture and fisheries”, “competitiveness”, “economic and financial affairs”, “environment”, “employment, social policy, health, and consumer affairs”, “education, youth, culture and sport”, “general affairs”, “justice and home affairs”, “transport, telecommunications, and energy” (“Council configurations,” n.d.). Although the configurations comprise relevant ministers of member countries, they function with many preparatory bodies, such as the Committee of Permanent Representatives (Coreper) or working parties (Council of the European Union, 2022, p. 2). Some of these working parties direct their focus on environmental matters, such as the Working Party on the Environment (ibid). Moreover, there are also relevant working parties that are created for the short term, including the Ad hoc Working Party on the Carbon Border Adjustment Mechanism and Ad hoc Working Party on the Social Climate Fund (ibid). As can be seen from its structure the EU Parliament has a three-layered structure with Member State ministries, configurations, and working parties. These three layers, make sure that EU Council can both incorporate the views of the Member States, as well as thoroughly discuss and research different policy options. It is also important to note that all three layers of the EU Council have some part that solely directs its attention to the environment, enabling the EU Council thoroughly discuss and research different policy options on the environment, while also maintaining an environmental focus in areas of clash.

As mentioned above, the Council is formed by the ministers of the Member States. Although this might help the Council to factor in the interests of the Member State and thus, have a more intergovernmental nature than the Commission, it might

not be true to argue that the Council is predominantly intergovernmental. Lempp and Altenschmidt, in their study, go through the structure of the Council and show us how it has strong supranational features (Lempp and Altenschmidt, 2008). They point out four informal mechanisms in the Council that lead it to be more supranational (Lempp and Altenschmidt, 2008, p. 523). Firstly, through permanent or long office terms in Coreper and other working groups, the representatives seem to have personal relationships and bondings, that give them a group feeling or an “esprit de corps”, which helps them to eschew deadlocks and gives them an increased chance of cooperation (Lempp and Altenschmidt, 2008, p. 517-520). The study calls this socialization (ibid.). Socialization as such creates social and cultural bonds between the representatives which can facilitate cooperation and group behavior. However, this formation of an esprit de corps through socialization can also be explained by the increased utility to engage in collaboration and compromise due to social relationships and one’s reluctance to lose face. The second informal mechanism mentioned by Lempp and Altenschmidt’s research is reciprocity (Lempp and Altenschmidt, 2008, p. 520). This points out the phenomenon where representatives are seen to compromise on certain topics, with the expectation to have gains in other topics (ibid.). Reciprocity can be specific, where in negotiation for a package deal, representatives actively make compromises, to get the specific gains they want (ibid.). According to Lempp et al., reciprocity can also be unspecific, where the representatives make compromises on certain topics when necessary, so in the future, they will be more likely to be accommodated by the other representatives (ibid.). Similar to the socialization mechanism, reciprocity also provides representatives with incentives to cooperate through social group values. However, some representatives openly express their will to be seen as compromising or

accommodating by other representatives to get support from other representatives (ibid.). Although proving the generality of this statement in Coreper and other working bodies might need more research on this area, it still shows us how the representatives are pushed to act like a group instead of representatives of their own country -hence more supranational- through their will to maximize their chance to have more support.

According to Lempp and Altenschmidt another factor that gives Coreper - hence the Council- more supranational qualities, is the nature of the Council Presidency. The Council Presidency is chosen for six months, among the Member States (Elgström, 2003, p. 3). The Council Presidency has many roles, including the organization and the control of Coreper meetings (Lempp et al., 2008, p. 521). Lempp et al. argue that Presidency mostly tries to be impartial, and reluctant to openly focus on the interests of its own country (Lempp et al., 2008, p. 521-522). For this they give two reasons, firstly, representatives go through seminars on the presidency, during which they are instructed to focus on the interests of the EU instead of their countries' interests (ibid.). Secondly, Lempp et al. show instances from interviews that if a presidency tries to shift the focus on their own country's interests, it is seen as a bad example of a presidency (ibid.) Similarly, Lempp et al. also show instances from interviews that presidencies mostly want to be regarded as good, even though no formal way of evaluation exists (ibid.). Again, this qualitative finding needs to be further tested and evaluated with quantitative methods to find out if this effect is chronically generalizable and if it indeed translates into behavioral changes in the Presidency. However, it still shows us why behaving in the EU's interests might be a logical choice for a Presidency and how this might give the Council a more supranational nature.

Lastly, Lempp et al. argue that representatives in the Coreper and other working groups tend to be indifferent in many policy discussions (Lempp et al., 2008, p. 522-523). Lempp et al. argue that if a dossier has no specific negative effect on a Member State, the Member State will be inclined to accept the consensus of the Council (ibid.). This again shows us how the functioning of Coreper and other working groups can help the general EU interests to have a chance to prevail, thereby shifting the Council to a more supranational functioning.

The working groups' and Coreper's functioning indicate an increased shift to supranationalism within the Council. This is important because it contributes to the readiness of the Council to be on board with welcoming the environmental regulations. Environmental laws and regulations such as the EU ETS might burden some states much more than others. While the general environmental outcomes are in the EU's interest as a whole, for some Member States, it is worth less than others. The supranational and socialized nature of the Council and its bodies gives the Member States and their representatives in the working groups more incentive to be supportive of environmental policies. This is because, it incentivizes the representatives to focus more on the good of the EU, a focus less on their national interests. Furthermore, the finding that the Coreper representatives tend to actively cooperate and compromise so that they can get overall support, show us that not cooperating might end up with a punishment. These are all contributing factors for the Council to support the environmental initiatives provided by the Commission. Therefore, they also contribute to the Council's welcoming behavior to EU ETS, proposal.

A more striking case in which Member States prioritize European goals rather than their own can be seen with the new Member States. In 2004 and 2007, EU has

gone through waves of enlargement. Since the EU ETS Directive was accepted before these dates, it is puzzling how these new Member States, which had no part in the initial decision-making, could be keeping up with the system. It is also puzzling how these states were able to avoid creating policy gridlocks in the later stages. After all, the new members had less capacity to abate emissions, and therefore more hot air. Moreover, it was in their interest to prioritize economic growth over the environment. Wang and Paavola specifically look at this puzzle. Similar to Lempp et al., Wang and Paavola find that the norms and social relationships between and within the EU institutions have incentivized the new Member States to cooperate with the common will (Wang and Paavola, 2022, p. 84). For example, Wang and Paavola's study finds that the Members of the Parliament tend to vote, based on their party allegiances, instead of their home countries' interests (Wang and Paavola, 2022, p. 76). Moreover, the new Member States differ in what they want in EU ETS, therefore a bloc of new members that can block or cancel the EU ETS is not present (ibid., p. 77). These being said, the new Member States, seem to decrease the stringency of the system. According to the same study, in order to secure support from the new Member States, the design choices and decisions are changed even before they are formally voted on, based on the information and feedback from stakeholders and informal inter-institutional meetings (ibid., p. 73,75). These design choices include backloading, formation of solidarity mechanisms like funds, and preference for market reserve instead of price floors (ibid., p. 78,80). These show us that although the new Member States led the policy design to change and become slightly less stringent, they tend to cooperate in the main points, thereby avoiding policy gridlocks.

Just like many aspects of the EU, decision-making has also different types and exceptions. However, the ordinary legislative procedure is an interplay between the European Commission, the European Parliament, as well as the Council of the EU. First, the European Commission initiates the legal act by submitting a proposal (also called an initiative). The Council of the EU and the European Parliament may ask the Commission to make research or propose initiatives on specific areas but the right to submit an initiative is only for the European (“The Ordinary Legislative Procedure,” n.d.). This means although the right to propose initiatives is reserved for the European Commission, agenda-setting can be affected by the European Parliament and the Council of the EU too. After that European Commission sends its initiative to the European Parliament. Then the first reading happens in which the European Parliament goes through the initiative and either accepts it or makes amendments (ibid.). Then the Council of the EU goes through the Parliament’s decision and wording (ibid.). If they both accept it, the initiative becomes a law, in case of a stalemate, the process leads to a second reading (ibid.). If they both accept the initiative in the second reading it becomes a law, if both reject it the initiative gets rejected, if there is a stalemate a conciliation committee convenes for creating a joint text (ibid.). Then in the third reading, this joint text gets voted on (ibid.). If it gets accepted, it becomes a law, if it gets rejected or in case of a stalemate, the process ends (ibid.). Although the European Commission primarily involves in the legislative process by submitting a proposal, it plays other important roles within the process, making it a true interplay between the European Commission, the European Parliament, and the Council of the EU. The European Commission involves in the ordinary legislative procedure by engaging in informal discussions -called trilogues- with the European Parliament and the Council of the EU during the readings (ibid.).

The European Commission can also alter how amendments get voted in the readings. If the European Commission provides a positive opinion on the European Parliament's amendments, then these amendments will need to be voted on with a qualified majority, else the voting should be unanimous (ibid.). This indirectly includes the Commission in the voting of amendments.

Another relevant EU institution is the European Court of Auditors (ECA). ECA checks the EU budgets, and spendings to make sure that the EU budget and revenues are raised in an accountable manner, and that the taxpayer's money is spent in an efficient, legally correct, and accountable manner (Kennedy, 2018). It also provides other EU Institutions and policymakers with annual reports and expert opinions on the specifics of the budget (OJ C 202, 7.6.2016, p. 1-47). During this process, ECA can focus on specific policies or initiatives and how they affect budget use and revenues. One example is its special report coded 18/2020, named *The EU's Emissions Trading System: free allocation of allowances needed better targeting*. Here, ECA specifically advises the Commission on ways to streamline the allowance allocation in the EU ETS (European Court of Auditors, 2020). ECA provides, very important features to the EU structure, first of all, by providing research and knowledge to other EU institutions, it increases the already strong research- and knowledge-based approach of EU institutions, such as the Commission, Council of the EU, and the Parliament. Moreover, by making sure that each initiative makes use of the taxpayer's money efficiently, ECA contributes to a more transparent, hence trustworthy design and implementation. Lastly, the ECA not only audits the main EU institutions but also the Member States with its national audit bodies, on how they implement the EU policies and how they make use of the budget (OJ C 202, 7.6.2016, p. 1-47). This strengthens the supranational nature of the EU's functioning.

The last EU Institution that we will look at is the Court of Justice of the European Union (CJEU). CJEU handles different types of cases and makes rulings that can affect other EU institutions, as well as the Member States. The different types of cases include preliminary rulings, actions for failure to fulfill obligations, actions for annulment, and actions for failure to act (Publications Office, 2010, p. 4,5). Preliminary rulings include communications between Member State courts and the CJEU, on the interpretation of the EU laws in the Member States. The Member State courts can ask for clarification, or in some cases, they need to ask for the guidance of the CJEU (Publications Office, 2010, p. 4). However, preliminary rulings made by the CJEU are classified as judgments or reasoned orders, and they are binding for the Member States (ibid.). Actions for failure to fulfill obligations include infringement cases where a Member State cannot correct its failure to fulfill obligations so that the case is brought before the CJEU (ibid.). The infringement procedure can be initiated by the Commission or other Member States (ibid.). CJEU's rulings on infringement cases are binding, and non-compliance can be punished by fines (Publications Office, 2010, p. 4,5). Actions for annulment include cases where an EU regulation, directive, or decision is found to be unfair or incongruous with the existing EU values or regulations (Publications Office, 2010, p. 5; Court of Justice of the European Union (CJEU), n.d.). Actions for annulment can be brought by the Member States, against the Parliament, the Council, or the Commission (Publications Office, 2010, p. 5; Court of Justice of the European Union (CJEU), n.d.). Actions for failure to act, include cases where EU institutions do not perform an action or take a decision in instances that they need to take action (Publications Office, 2010, p. 5).

CJEU is important for the general functioning of the EU, as it pushes the EU Institutions and the Member States to act whenever necessary. By making sure that decisions taken on the EU level can be interpreted and transposed on the Member State level correctly, and by enforcing correct implementation with the threat of infringement cases, CJEU improves the resilience of all EU decisions. We will go through how infringement cases function and what they might mean for the EU ETS. However, it is important to note that CJEU does more than just making sure transposition and implementation by the Member States are correct, according to several researchers, it might be making the EU system more supranational, by favoring EU laws over the Member State laws and preferences and by favoring the interests of individuals instead of the Member States (Kolcak, 2014, p. 1).

According to Kolcak several features of CJEU makes it a supranational legal system, including the doctrines of supremacy, as well as the direct effect principle of the EU law (Kolcak, 2014, p. 1).

In the 1950s Member States were not thoroughly enforced to comply with the CJEU rulings, as their sovereignty was seen as more important than the EU treaties (ibid.). However, in its ruling in the Van Gend and Loos case, CJEU established that the new legal order provided by the Treaty of Rome would naturally limit the sovereign rights of Member States (ibid.). In rulings of two following cases – Simmenthal and Internationale Handelsgesellschaft- CJEU strengthened its position by establishing that in case of a conflict between Member State law and Community law, Community law would be followed (ibid.). This would be the case even if the conflict is between an EU law and a constitutional law of a Member State (ibid.). This superiority of EU law over the national laws is called the Supremacy Principle, or also the Primacy or the Precedence Principle (ibid.; “Primacy of EU law,” n.d.).

The Direct Effect principle, similarly, partially curtails the sovereignty of Member State legal systems. Direct Effect Principle means that the cases and matters regarding the EU law can be invoked before a national court (Kolcak, 2014, p. 2). It refers to cases where individuals benefit from the EU law and rights by invoking them in national courts, regardless of their national laws (ibid.; “Primacy of EU law,” n.d.).

These two principles increase the overall supranationalism of the EU by making its legal system more supranational. With the help of these principles CJEU forces national courts to prioritize EU laws, with little regard for the legal framework of the Member State on a specific issue. These features of the CJEU might be controversial due to their sovereignty-limiting natures. However, it helps the EU to enforce its laws and make sure that its directives, and decisions are longevous. Kolcak also argues that national courts are more susceptible to being influenced by the legislature and executive pressures (Kolcak, 2014, p. 1). This shows that CJEU, by its supranational nature, makes sure that EU laws and legal system can enjoy being more immune to Member State’s inner political and legal dynamics.

A study by Navraj Singh Ghaleigh that looks specifically at the role of CJEU on EU ETS litigation processes, mostly shows that Kolcak’s study has been in the right direction. Firstly, he points out that EU ETS has invoked a big litigious activity, by resulting in 40 cases -as early as- at the end of 2008, while within a similar period, Air Quality Framework Directive only resulted in 17 cases (Ghaleigh, 2009, p. 374). He also points out several correlations, such as in countries where phase 2 plans resulted in higher carbon allowances cuts/limitations (Germany, Poland, Bulgaria, and Baltic States), or the newest Member States there has been considerably more litigious activity (Ghaleigh, 2009, p. 386, 387). However, Ghaleigh adds that CJEU

has a different focus in the handling of these cases than the Commission, where the Commission tends to focus on environmental integrity and the overall functioning of the system CJEU is noted to focus on stability and fairness of the market mechanisms for all Member States (Ghaleigh, 2009, p. 386). The study cites that the high amount of litigious activity from the newest EU Members might have resulted in the introduction of redistribution mechanisms where 10 % of the allowances in each allocation period are reserved for the newest members (Ghaleigh, 2009, p. 386). This shows us that CJEU might have contributed to the design of the EU ETS by forming a new information channel between Member States (including the installations within) and the EU Institutions. However, this inference needs further study as the link between the design change and litigious activity can be spurious. There is, however, another characteristic of CJEU's rulings on ETS, that have increased the market stability and resilience of the EU ETS. According to Ghaleigh's research, in cases where Member States ask for laxer decisions on NAPs or allocation of allowances, CJEU would mostly stand by the Commission's decisions and reject any calls to make the system laxer or increase the number of allowances allocated by NAPs (ibid.). This directly protects the system from being laxer and less environmentally effective. Lastly, the study suggests that the consistency of CJEU in abiding by similar -and restrictive- interpretations of the laws while ruling in all the EU ETS-related cases has contributed to a higher degree of certainty and stability in the EU ETS market structure (Ghaleigh, 2009, p. 386).

Overall EU Institutions work with one another in a complicated but effective way. This interplay provides the EU with different qualities, such as many channels of knowledge sharing and increased supranationalism. As seen in the paragraphs above and will be seen in the chapters below, the Commission primarily provides EU

institutions and the people within with information from experts and stakeholders. Moreover, with the working groups of the Parliament, or other helper bodies in the Council such as the Coreper, the Commission is hardly the only source of information. This abundance of information channels, and the Commission's role of preparing reports for its initiatives, provide the decision-makers with systematic knowledge, which is often used in the EU-internal debates, like the plenary sessions of the Parliament, which will be seen in the following section. This helps the MEPs, commissioners, and Council bodies to base their debates and decisions on up-to-date knowledge, which provides them with a clear direction for utility maximization at a certain goal. This is a contributing factor to the low climate change skepticism and overall high environmental ambition in the EU Institutions, as can be seen in the plenary discussions, in the following paragraphs.

4.4 Ambition of the European Commission

The sections above go through policies and communications from the EU that paved the way for the EU ETS as well as the structure of the EU. It is clear that the European Commission had high ambitions and the will to bring about strong emission mitigation and do it by EU ETS. We will go through plenary debates of the European Parliament as they allow the European Commission, the European Parliament, and the Council of the EU to discuss the issues at hand, allowing us to gain insights into the level of ambition of the EU Institutions, and how this ambition propagated itself in the discussions.

As mentioned before, the European Commission is the body that proposes legislation in the EU. However, its role is not only to propose new legislation. It also runs research on important policy areas and publishes papers on relevant policy

areas. For example, with its green and white papers, it not only brought the proposal of an ETS to the table but information and research regarding climate change, emission mitigation, and emission trading systems. Moreover, the president of the Commission and certain other commissioners join the trilogues, filling in the MEPs and members of the Council of the EU. For example, we can see in Wallström's - European Commissioner for the Environment between 1999-2004- speech, how Commissioners tend to fill in the discussions with information that aims to increase understanding. "Emissions trading uses market forces to ensure that reductions are made where it is cheapest and everyone benefits from these cheaper options" (Wallström, 2002). The Commission also points out research directly made by them, playing an active role in keeping the plenary debates fact- and research-based. For example, the Green Paper, White Paper, and stakeholder reports prepared by the Commission and the rapporteur are brought into the debate, both in cases of status updates and their results. "Finally, the responses to the Green Paper that have been received so far – about 50 in number – reflect the high level of interest in this instrument. (Wallström, 2000)". Comments like these are quite common in plenary debates. With its research and explanatory comments in the debates, the European Commission not only acts as a legislative body but shows a technocratic color in the plenary debates and trilogues. It provides the Parliament and the Council with information and research, which both help the discussions in the debates to stay on a more factual/scientific level and also make sure that the MEPs and members of the council are more informed about what they are voting on during the co-decision process.

Why is the European Commission's research function important for the EU ETS? Many pieces of research done by climate and environmental scientists point

out the existence of climate change and link this to the anthropogenic increase of GHGs. Knowing this, including these pieces of information in debates, either through the talks or through the research and reports made by the Commission or the Rapporteur, can be linked with the low rate of denial of climate change among the Commissioners and MEPs and the willingness to discuss climate change in the plenary debates. We see many Commissioners and MEPs point out in the debates that climate change is real and ambitious actions should be taken. Asking for more stringent ETS goals is a quite common theme in the plenary debates, while some even pushed for more stringent rules for enforcement of Member States, such as Johannes Lebech (on behalf of ALDE) who said:

We would also have liked more stringent penalties for Member States to ensure that we do not get to 2019 with some countries still being a long way from achieving their targets. Member States should be responsible and start making plans now for how they will reduce their greenhouse gas emissions outside the emissions trading scheme. (Lebech, 2008)

As mentioned in the paragraphs above, we see many members who refer to the different pieces of research to argue in favor of the ETS. While arguing for more stringency, many also give examples from natural disasters in their own countries including floods in Germany and Spain, considering the vast geographic reach and climatic diversity of the EU, MEPs, Commissioners and the Council members had no hard time finding natural disasters to cite. Fiori's (from EPP) input to one of the plenary debates constitutes a good example of this tendency. Fiori says:

Commissioner, allow me to focus for a moment, in the context of Mr. Da Silva's excellent report and the situation which she has just described, which is important and full of potential for the future, on a phenomenon which is assuming dramatic proportions: the floods which affected huge areas of Europe last week, primarily northern Italy but also France and Spain. We are acquiring the habit of describing our times in dramatic language: verbs such as to overflow, to flood, to burst banks, are part of a vocabulary that is becoming almost the norm. We feel that this is a dramatic consequence of the

climate change taking place and that the social and economic system must provide some sort of response to this. (Fiori, 2000)

Here we see a citation of the Commission report and the use of natural disasters as a reason for arguing for stringency, which gives us incidents about many of the points that I have made. Use of floods and natural disasters in climate change and emission mitigation debates, as well as having debates that specifically focus on disasters as such, hint us at an additional source of ambition for the EU bodies. The use of such events in climate change mitigation, not only shows a high level of ambition but also shows us that path dependence might have been playing a role in keeping the climate-related discussions alive, while also keeping the willingness of coming up with stringent results high.

It is visible from the plenary debates that there is a strong consensus among the Member States that climate change is real and that it is an important problem. During the debates that have led the way to the EU ETS, antagonism with the US is also quite visible and noteworthy. This leads to strong criticism of the US, by Commissioners, the MEPS, and members of the Council, on many occasions for denying climate change or its link to the anthropogenic increase in the use of fossil fuels. For example, in one of the questions raised in the plenary debates, we see an instance of this antagonism, as mentioned by Aylward:

It was revealed that he (White House Councilor on Environmental Quality) had made changes in several federal environmental reports in 2002 and 2003. The changes tended to emphasize the uncertainty of evidence that greenhouse-gas emissions are causing global temperatures to rise. The adviser in question, who has no background in science, had previously headed the oil industry lobby on climate change in the USA. Does the Commission agree that decisions on serious environmental problems must be based on sure and accurate science? (Aylward, 2005).

In many of the debates, similar to this, the US is criticized for being in denial of the severity of climate change. This lack of acceptance is pointed out to be a reason for the low ambition of the US. This difference in ambition might explain why the European Commission was able to initiate its ETS, and why the EU was able to build an EU-wide system while the US couldn't build a system that covers all of its states. However, in addition to this, the reluctance of the US is seen by the EU bodies as a factor that necessitates the EU to be even more ambitious and a reason to try to be the forerunner in the fight against climate change. This is openly stated in many of the plenary debates, Bjerregaard's comment on the plenary debate, is one such statement. Bjerregaard says:

If we are to achieve an ambitious result in Kyoto, it is clear that the EU must continue to take the lead. We cannot expect the USA and Japan to be out in front. Their targets are too modest, and their credibility amongst the developing countries is lower than ever. (Bjerregaard, 1997)

The ambition of Commissioners, MEPs, and Councilors, seems to be so high in fighting climate change, that it also includes the fear that the emission mitigation goals cannot be attained. This anxiety that results from being informed about climate change, and high ambitions, could also increase the level of ambition in a vicious cycle. But there is indeed a consensus and a huge ambition between politicians of EU bodies, that is not seen in many other political bodies, like the US.

The consensus among the members of the European Commission, the European Parliament, and the members of the Council of the EU makes them ambitious in climate change mitigation and emission mitigation. It is quite important because the ambition for fighting climate change or lack thereof affects the discussions around the ETS. In the US, where this ambition was much lower, Congress is less likely to allocate time and resources to long debates on emission

mitigation policies. In the lack of ample emission mitigation or climate change mitigation debates, the decision-makers are not given a chance to design or enact a system such as the ETS, as the agenda and how it is set can affect policymaking. Even when the system is put under debate it can be rejected in its entirety. Unlike the US, where Congress members are less ambitious on the adoption of an emission trading system because of climate-skepticism, the EU bodies tend to act much differently. The EU Member States, and their representatives that are not happy with the ETS, tend to recommend amendments to the system or recommend other solutions other than terminating the emission trading system or the fight against climate change. This gave them a push to be more active and willing to put the ETS into the force, and possibly maintain it along the way as well. Among the plenary debates that were done before 2005 and from 2005 to the end of the first pilot phase of the ETS, the idea of abolishing the ETS was almost non-existent, and the debates were predominantly focused on amending the system rather than terminating it.

Almost all of the Member States were ambitious in fighting climate change and most were on board with the EU ETS, after the initial discussions and the papers provided by the Commission. However, there were some considerable negative voices as well. Some representatives -such as Meijer from the Netherlands- were arguing that the system can allow the rich countries to buy their way out of the limitations and thereby jeopardizing the success of emission mitigation goals (Meijer, 2000). As mentioned, before another disagreement came from Germany, which was quite notable and risky for the success of the system as Germany was - still is- the biggest GHG emitter in the EU (Convery, 2009, p. 402). The reasons for this reluctance from Germany's side included active disinterest from industry stakeholders and the fact that many of Germany's industrial entities were already

committed to Germany-wide emission mitigation through a voluntary agreement (ibid.). As mentioned in the earlier chapters, Germany's reluctance cleared, as Green Party in Germany gained more power and as Commission made several amendments to the EU ETS design (ibid.).

Overall, the communications by the Commission and the plenary debates show us that the EU institutions have a high level of ambition in climate change mitigation. The structure of the EU also allows a flow of information and ambition from the Commission to other EU institutions. These show us that the high level of ambition of the EU was strengthened by the structure of the EU, which allows the EU institutions to cooperate in many ways. Lastly, the supranational nature of the EU allows the EU to curtail the vetoing abilities of Member States, like Germany. This allowed the EU Institutions to keep discussing the EU ETS and operationalize the system.

CHAPTER 5

DESIGN SPECIFICS OF THE EU ETS AND EVOLUTION THROUGH PHASES

Although different ETSs resemble each other they are far from the same. In this part, we will go through design choices that differentiate different cases of ETSs, while specifically focusing on the EU ETS. while also seeing examples from existing case studies. Here we will try to see if any specific design choices might have affected the viability and resilience of the EU ETS.

5.1 Emission and sector coverage

One of the features that might drastically affect the functioning of an ETS is its coverage. We can talk about two types of coverage, which are sectoral coverage and emission (gas) coverage.

ETSs are mostly seen as a solution for carbon mitigation or coal phase-out. However, ETSs do not necessarily only focus on carbon dioxide. They can focus on multiple types of emissions. A shortlist of various ETSs and the gasses that they cover can be seen in Table 1.

As can be seen from Table 1, all the ETSs in operation cover carbon dioxide, which is true for other ETSs that are not included in the list. In addition to carbon dioxide, some ETSs cover other gasses including methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, perfluorochemicals, and nitrogen trifluoride. The number of gasses covered gives us an important metric for seeing the amount of ambition of an ETS. Another important factor effective in an ETS's gas coverage choices is the sectoral composition of a state such as the size of each sector in a country, including agriculture, heavy industry, etc. For example, it is not surprising

to see methane among the covered gasses in New Zealand ETS, which also covers agricultural emissions.

Table 1. Gasses Covered by ETS

ETS Name / Location	Gasses Covered	GHG Emission by Sector (in MtCO ₂ e)
RGGI (in force in the Northeastern states of the US)	CO ₂	Transportation (275.9) Electric power (104.1) Residential (84.7) Commercial (59.7) Industrial processes (39.8)
California	CO ₂ , CH ₄ , N ₂ O, SF ₆ , HFCs, PFCs, NF ₃ , and other fluorinated GHGs	Transportation (173.8) Industrial (101.3) Electric power (63.2) Agriculture and Forestry (32.6) Residential (30.5) Commercial (23.9)
New Zealand	CO ₂ , CH ₄ , N ₂ O, SF ₆ , HFCs, and PFCs	Agriculture (37.7) Energy (31.9) Industrial (5.2) Waste (4.1)
Kazakhstan	CO ₂	Energy (305.1) Transportation (26.1) Industrial processes (22.4) Agriculture (36.2) Waste (6.8)
EU ETS	CO ₂ , N ₂ O, PFCs	Energy (2,907.1) Agriculture (394.4) Industrial (343.5) International Aviation (129.2) Waste (117.2)
Canada (Nova Scotia)	CO ₂ , CH ₄ , N ₂ O, SF ₆ , NF ₃ , HFCs, PFCs	Electricity and heat generation (6.9) Transportation (5.8) Heat (residential) (1.4) Industrial (incl. oil and gas) (1.3) Agriculture and waste (0.9) Heat (Commercial) (0.6)

Source: Welcome to the ICAP ETS Map. (n.d.). Retrieved 2023, from <https://icapcarbonaction.com/en/ets>

In its phase 1, EU ETS only covered carbon dioxide emissions. In the second phase, nitrous oxide emissions are also included for some sectors (“Development of EU ETS,” n.d.). Later several perfluorocarbons are added gradually (ibid.). Although gasses covered have implications for monitoring emissions and can make the ETS more burdensome for some countries or sectors, the amount of focus it attracts -both in plenary debates, in stakeholder reports, and in the academic literature- is considerably less than some other design options, including the allowance method for allocations. Considering that carbon dioxide accounts for about 74.4% of greenhouse gas emissions, this focus on carbon dioxide is not surprising (Ritchie et al., 2020).

Looking at the design choices in gasses covered expectedly gives us no insight or visible correlation on ETS viability or resilience. Many ETSs with wide gas coverage, like California and New Zealand, can be both viable and resilient. However, Australia’s both emission mitigation policies (Carbon Pollution Reduction Scheme, Carbon Pricing Scheme) featured similar gas coverage to New Zealand’s ETS, while they were both terminated at the very beginning (Wettestad et al., 2018, p. 131-132). This does not mean that an ETS with a narrower gas coverage is bound to be resilient. The Kazakhstan ETS only covered carbon dioxide, but it still needed to be suspended (Wettestad, 2018, p. 169, 176). These show us that there is no correlation between the gas coverage of an ETS and its chance to be resilient.

As seen above, a state’s emissions by its sectors have an influence on which GHGs are covered by their ETS. We can find similar links between emissions by sector and sectors covered by ETS. For example, it is not unexpected for New Zealand to cover the agricultural sector in its ETS with 37.7% of its emissions originating from agriculture. However, sector coverage is not only a result of sectoral

contribution to emissions. The number of sectors included in an ETS, or whether the installations/sectors are given a chance to opt out, can affect the market structure and emission abatement costs. Research made by Zhang et al. on the Chinese ETS shows us that a bigger sectoral coverage can decrease emission abatement costs (Zhang et al., 2022, p. 1). In their research, they found out that covering 6 sectors instead of just covering electricity generation can reduce emission abatement costs by over 80% (ibid., p. 7). Reflections of this finding lie in the very motivation of the Commission to make sure the EU carbon market is not fragmented during the writing of Green and White papers. Although the Green Paper by the Commission focuses on the fragmentation regarding the inclusion of Member States (“European Commission, 2000, p. 14), we can see the instances of the will to include more sectors and Member States in Commission speeches in plenary debates. In a 2002 plenary debate, Commissioner Wallström expresses the need to eschew opt-out options for sectors and Member States with these statements:

We need a system with clear rules to promote transparency and confidence in the model, with no opt-outs because this will distort competition and reduce cost-effectiveness. . . . If one Member State wants to exempt its cement or electricity sectors, the others may be tempted to do so too, fearing that their companies will be disadvantaged in the internal market. . . . I repeat that the cost-effectiveness of the instrument is directly linked to its coverage of the whole European Union. (Wallström, 2002)

Former MEP Corbey points out in the same debate session that it makes more sense for the installations as well, not to have a chance to opt out, as due to Kyoto goals, they will need to abate emissions either way (Corbey, 2002). Similar thoughts are seen among businesses as well. According to a stakeholder analysis made in Austria, businesses are reported to express that a wider sectoral coverage would entail more stable carbon allowance prices (Fujiwara et al., 2015, p. 8). This stems

from the effect that the carbon prices in non-ETS sectors tend to be higher and thereby creating disunity in the carbon markets (ibid.).

Looking at the Commission's Green Paper, as well as the plenary debates, it is apparent that the EU wants a bigger ETS for increased cost-efficiency. The ETS size refers both to the number of Member States, as well as the number of sectors. This is because greater coverage makes more sense for the EU as a whole and the businesses within, due to decreased abatement costs. For this reason, the current design does not allow any Member States, nor the installations within to opt out of the EU ETS. Also, parallel with these views, EU ETS has been growing in each of its phases.

In its first phase, the EU ETS covered power stations and combustion installations that exceed a certain threshold, as well as certain industry branches that exceed various thresholds, these include, oil refineries, iron and steel plants, glass production, etc. ("EU Emissions Trading System (EU ETS)", n.d.). In the second phase, the aviation industry started to be covered (ibid.). In the third phase, industries producing petrochemicals, ammonia, certain additional metals, gypsum, glyoxylic acid, nitric and adipic acid were also started to be covered (ibid.) For the fourth phase, the EU ETS will start to cover CO₂ emissions in the maritime by 2024, and it will start to cover methane emissions in the maritime in 2026 (Lin, 2022). These all show us that the EU is willing to make the EU ETS larger both in its sectoral coverage and gas coverage to make abatement costs lower and to make the prices more stable. The initiatives from the Commission to do so have been successful, as the EU ETS has increased the sectors, gas, and even the Member States it covers. In 2021, by covering about 1500 metric tons of carbon dioxide it has become the second biggest ETS in its emissions coverage, coming after China (Bush et al., 2022, p. 2).

The third is the South Korean ETS with 580 metric tons of emissions coverage (ibid.).

5.2 Cap

As mentioned at the beginning part of this chapter, an emission cap refers to the total amount of emission allowed for ETS parties to emit, which is then partitioned into allowances to give parties their portions of emission privileges (“How cap and trade works”, n.d.). One positive effect of caps is that they ensure that the total amount of emissions won’t surpass a specific value (ibid.). This can make the ETSs environmentally more goal-oriented and effective. However, ETSs do not have to have caps. For example, New Zealand ETS had no emission cap due to the design that allows installations to use unlimited amounts of international carbon offset credits (Wettestad, 2018, p. 106-107). These two cases show us that an ETS does not have to have a cap to be operational. However, New Zealand officials later disallowed the use of international offset credits (“New Zealand Emissions Trading Scheme,” n.d.). This made the system much closer to a cap-and-trade system.

Although caps seem to be universal in all the ETSs now, their designs are by no means the same. There are, in fact, two types of caps, which are mass-based and intensity-based (IEA, 2020, p. 24-25). A mass-based cap refers to a limitation, that is directly set regarding the total amount of emissions made by an economy (or specific sectors if that is a multiple-cap system) (ibid.). This type of cap is definitive, and its level does not change unless it is deliberately altered or set in a system where the cap linearly decreases each year. This type of cap seems promising in the sense that, if compliance is ensured, it would guarantee a reduction in emissions (ibid.). This type of cap is the most popular among different cases of ETSs. An intensity-based cap

refers to a limitation, that is set to the amount of emission, factored by the output (ibid.). This cap is not definitive, and it might fluctuate as a result of influences from the economy, changes in GDP, weather, etc. Although this type of cap ensures an increase in efficiency and reductions in emissions in the long term, it does not guarantee a downward trend in emissions right after starting to operate, like the mass-based cap. Mass-based caps with linear reduction rates are not only good for ensuring reductions, but they are also quite straightforward, the reduction of the cap every year can be easily calculated. This allows an analyst or a forecaster in a company to plan. This can be a contributing factor to market trust and participation.

Caps also differ in the directionality of the way they are set. They can be set in a bottom-up or a top-down manner (IEA, 2020, p. 35). Top-down caps are centrally chosen by an authority and partitioned between companies/entities/Member States (ibid.). When a cap is set bottom-up, it means that an aggregate of cap choices made by multiple actors (Member States, installations) is set as a cap. EU ETS shows features of both bottom-up and top-down cap settings. In its first and second phases, the EU ETS followed a bottom-up approach while setting the cap, during which the national goals of each Member State were added up (ibid.). For this, the Commission asked the Member States to come up with their own National Allocation Plans (NAPs), which it used to create the EU-wide cap for the EU ETS. In the third phase, EU ETS switched to a top-down approach (IEA, 2020, p. 35). According to International Energy Agency, using a bottom-up approach might have helped the Member States to gain experience and also get better at monitoring emissions (ibid.). However, this finding must be backed up by other case studies. On the contrary, the bottom-up approach in setting the cap of EU ETS might have resulted in a less ambitious cap, and hence overallocation of allowances (Karakaya, 2020). According

to Karakaya, Member States provided the EU with inaccurate data about their emission levels, which showed the level of emissions higher than they were (ibid.). This overallocation of allowances undermined the stringency of EU ETS, as well as decreased the allowance prices (ibid.). In order to eschew these problems, the EU ETS, switched to a top-down approach, as mentioned above. According to the report of the International Energy Agency, switching to a top-down approach made the system more successful, by making it more transparent and certain (IEA, 2020, p. 35). The functioning of the EU ETS with NAPs in its first two seasons and then the lack of the NAPs has changed the system considerably. Although cap setting is among the most important controls that NAPs allowed Member States to take part in the design, NAPs had many details on other specific design choices and how each Member State will make use of them.

Caps are important also because they affect the value of each allowance. Setting a higher emission cap would result in lower allowance costs, which would hardly incentivize companies to take measures unless the cap gets lowered in the following years (ICAP, World Bank Group and Partnership for Market Readiness, 2021, p. 78). Therefore, for a successful and ambitious ETS, caps shouldn't be too low or too high. Moreover, according to ICAP, the size of the cap and all other processes in the ETS should be made public and it should be communicated thoroughly, to ensure efficiency and facilitate planning (ICAP, World Bank Group and Partnership for Market Readiness, 2021, p. 163).

In EU ETS we see many changes in the cap setting from phase 1 to phase 4, most of which made the system more ambitious and harmonious, helping its resiliency. As mentioned above in the first phase, the Member States were asked to provide the Commission with their estimated carbon allowance needs, based on

historical data. This has totaled to a cap of 2,096 MtCO₂e (“EU Emissions Trading System (EU ETS)”, n.d.). For phase 2 a similar approach was followed, where the Member States were asked to provide the Commission with their estimated carbon allowance needs. The Commission provided the Member States with a guideline on how to calculate their caps and how to prepare their NAPs in general (European Commission, 2005). The Commission checked the NAPs of each Member State. This resulted in a new cap of 2,049 MtCO₂e (“EU Emissions Trading System (EU ETS)”, n.d.). In the latter two phases, EU ETS shifted to a system that allowed more planning on the company and stakeholders’ side. The EU ETS got an EU-wide top-down cap of 2,084 MtCO₂e, with a linear yearly reduction of 1.74% (ibid.). In the fourth phase, with a greater ambition to decrease emissions with the EU’s 2030 climate targets, a more stringent cap design is used (“Revision for phase 4 (2021-2030),” n.d.). It has an EU-wide top-down cap of 1,572 MtCO₂e with a linear yearly reduction of 2.2% (“EU Emissions Trading System (EU ETS)”, n.d.). The cap-setting approaches in EU ETS show a drift from bottom-up to top-down, and from diverse to harmonious. This harmony also created by the automatic linear reduction of the cap can be adjusted to increase stringency between phases.

5.3 Allocation methods

Allocation means the distribution of emission allowances to the companies/entities that partake in an ETS (“Allocation”, n.d.). There are many ways in which a state may influence how allocation can be made. Differences in methods of allocation can result in differences in ETS efficiency, ambition, etc. However, before delving into how allocation methods can affect an ETS, we should first go through the allocation methods themselves. There are two main allocation methods, which are free

allocation and auctioning (ibid.). However, a system can make use of both allocation methods, such as the EU ETS. Free allocation refers to giving allowances to entities free of charge. Auctioning, on the other hand, makes entities buy all of the allowances they will have to surrender. Free allocation can be divided into three subcategories, which are grandfathering, fixed sector benchmarking, and output-based allocation (Yang et al., 2020, p. 1; Takeda et al., 2011, p. 2).

Grandfathering method allocates allowances to entities, based on their historical emission data, and more specifically, based on their emission data in a base year (“Allocation,” n.d.). Grandfathering method has different benefits and disadvantages. Its benefits are that it is politically quite feasible and has a lower chance of inducing opposition from companies and installations (Deutsche Gesellschaft Für Internationale Zusammenarbeit, 2020, p. 7; “Allocation,” n.d.). There are two reasons behind this high political feasibility. The first is that grandfathering has low implementation costs for the officials in the state, as it requires less vigorous research and recalibrating (compared to benchmarking) (Deutsche Gesellschaft Für Internationale Zusammenarbeit, 2020, p. 7). The second reason is that it burdens entities with low-initial costs, which means high-emitters get more allowances than low-emitters, which lowers the costs for the heavy emitters and helps them ease into the system (ibid.). This very benefit, which can improve compliance and reduce opposition, brings its own downsides. Firstly, in this system, entities who took early carbon abatement measures are penalized by getting considerably fewer allowances, whereas entities with excessively heavy emissions are rewarded with excessive amounts of allowances (ibid.). Moreover, this method puts new entities/companies (the ones that are opened or joined into the ETS sometime after the ETS was put in force), at a disadvantage, by allocating them

considerably fewer allowances compared to the emitters, which can get more allowances thanks to their historical emission data (“Allocation,” n.d.).

Fixed sector/product benchmarking allocates allowances according to the performance of an emitter regarding different environmental indices, that compare the emitter with other emitters in the same sector (or with entities that manufacture the same type of product) with the help of historical data (taken from a base year) (Deutsche Gesellschaft Für Internationale Zusammenarbeit, 2020, p. 8; “Allocation,” n.d.). This method is similar to grandfathering in the sense that it makes use of historical data. However, it differs from it in several ways. First, it looks at general data regarding a sector/product, not individual companies. This helps the method to ease disadvantages that are put on to newly opening entities. Secondly, instead of looking at historical emissions data, this method looks at several other indices that might measure different aspects, including but not limited to efficiency, output, throughput, environmental impact/output, etc. In this type of system, each entity is evaluated, using the above-mentioned indices. The entities that mark higher, compared to other entities in the same sector, get more allowances. Since this method does not allocate allowance in accordance with historical emission data, it does not reward heavy emitters. Because of the same reason, early action does not get penalized, as is the case with grandfathering (Deutsche Gesellschaft Für Internationale Zusammenarbeit, 2020, p. 8). Moreover, newly opened entities/companies are not put at a disadvantage, as they can get allowances in amounts comparable to already-existing entities if they are careful about their compliance with the indices. According to the report made by GiZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), if output levels are put among the indices, in ETSs that make use of this method, entities might be incentivized to

decrease their outputs, to rank higher in accordance with the benchmarks(ibid.).

While this would decrease emissions, it would undermine the cost-efficiency of ETS.

Therefore, the indices that will be used, should be chosen carefully.

Output-based allocation, distributes allowances to entities, in accordance with their current outputs, meaning that an entity that has a bigger output would get more allowances than an entity with a smaller output (ibid.). It has two main differences from fixed sector/product benchmarking. The first is that it makes use of current data, instead of historical data (ibid.). The second difference is that fixed sector/product benchmarking does not have to include output among its indices (or output does not have to be the only index, in case it is included), while this method is exclusively output-oriented. This method does not penalize early action, or any abatement action for that matter, as the number of allowances given, is not related to the number of emissions (ibid.). Therefore, if banking and trading are allowed, entities that took early action would have more leftover allowances than the ones which did not, which they can bank for future use or sell and gain profits. One another benefit of this approach would be that it would put less burden on entities that produce more, therefore incentivizing productivity and growth. This incentivizing effect can serve as a protection against entities' urge to relocate their businesses to places with less stringent environmental regulations, which is called carbon leakage (ibid.). We will go through carbon leakage in much more detail in the following paragraphs of this chapter. However, compared to other free allocation methods, this method has a bigger focus on output and hence rewards productivity, therefore it gives entities less incentive to relocate. Like the other allocation methods, this method also has a downside. According to GiZ, implementing an ETS with output-based allocation can undermine the cap. If the output-based allocations are

not adjusted to be aggregately lower than the cap, the allocations can exceed the cap, in cases where output increases faster than expected (ibid.).

The last allocation method, which is also the only non-free allocation method, is auctioning. In auctioning method, entities must buy their allowances themselves. This method makes allocation more efficient and convenient for the planners, as it does not require research about output rate, historical emission data, indices, and compliance thereof (Labandeira et al., 2017, p. 2). By letting entities pay for their allowances, auctioning also increases the price signal on carbon. This makes emitting more costly and hence, it can incentivize entities to work harder for escaping from being locked into carbon-heavy industries (Acworth, 2017, p. 2). Moreover, by auctioning the allowances, states can get revenues that they can use for other emissions mitigation-related issues (Labandeira et al., 2017, p. 2). How these revenues can be earmarked will be discussed in more detail in the concluding parts of this chapter. Lastly, another benefit of auctioning is that it gives entities an equal chance of reaching allowances (“Allocation.”, n.d.). Except for the case that allowance prices are too high (a case that is quite rare compared to overly-cheap allowances), auctioning gives all entities an equal chance of buying allowances, thus, heavy emitters are not rewarded or early-actions and new entrants are not penalized. Finally, auctioning is less prone to be affected by lobby activities as it requires minimal central intervention (Deutsche Gesellschaft Für Internationale Zusammenarbeit, 2020, p. 9). Although auctioning has many benefits and is being used increasingly common in many different ETSs, it also has downsides. Firstly, it provides little to no protection against carbon leakage (ibid.). Lastly, since auctioning increases the financial burden on entities, it has a bigger potential in creating opposition, especially if auctioning is adopted at the initial phases of an ETS (ibid.).

Carbon leakage is one of the biggest concerns that states have while deciding on their allowance allocation methods. Because of strict rules or high costs for emissions, entities (especially the ones that work in emission-intensive sectors) might relocate themselves to countries, that have laxer or no regulations on emissions (“Carbon leakage,” n.d.). This is called carbon leakage. Carbon leakage is an unwanted result that can be seen due to overly stringent emission mitigation rules or overpriced allowances. It is unwanted because the relocation of entities might result in pollution in other countries and eventually in the atmosphere in general (ibid.). These results of carbon leakage are completely incongruous with the *raison-d’être* of emission mitigation regulations like the ETS. What is more, the relocation of entities can have depreciating effects on the economic size and the employment rate.

As auctioning tends to make access to emitting privileges more expensive, there is a consensus that auctioning might exacerbate the carbon leakage problem (Labandeira et al., 2017, p. 2). Therefore, many ETSs like the EU ETS prefer to start allocating allowances predominantly free and ease into auctioning. As we look into the EU ETS, we see that in its first and second phases, free allocation was the main allocation method (Labandeira et al., 2017, p. 2-3). In the third phase, auctioning became the main allocation method, while sectors that are deemed as prone to leakage still got free allocations (Labandeira et al., 2017, p. 3). In the fourth phase, a new (shorter) list of vulnerable sectors continues to get all of their allocations for free, other sectors that take free allocations will switch to auctioning in a piecemeal fashion (Labandeira et al., 2017, p. 5-6). For these non-vulnerable sectors, the free allocation/total allocations ratio will have decreased to a maximum of 30 % by 2026 (“Allocation to industrial installations,” n.d.; “Carbon leakage,” n.d.). Beginning with 2030 all non-vulnerable sectors will exclusively get allocations via auctioning (ibid.).

A possible negative outcome of unfit allocation method choices is windfall profit. Some entities can pass through the emission allowance prices to customers by increasing the fees for their goods and services, even though they got the allowances free of charge (Labandeira et al., 2017, p. 5). Sectors such as the energy sector (e.g. electricity retailing), which typically does not face international or domestic competition, and have to be used by a very large percentage of the population, typically have a high pass-through rate, and hence, windfall profits (ibid.). According to a study made by de Bruyn et al., it is estimated that between 2008-2014, the 15 most-emitting sectors in the EU gained more than 15 billion euros worth of windfall profits (de Bruyn et al., 2013, p. 2). Although different types of free allocation methods have different effects on windfall profits, they all tend to allow for windfall profits more, compared to auctioning. For example, when allowances are allocated with grandfathering, some high-emitting sectors that could reduce their emissions more quickly than others, end up getting additional free allowances without needing them, which is a different kind of windfall profit (Deutsche Gesellschaft Für Internationale Zusammenarbeit, 2020, p. 8). Avoiding windfall profits is one of the reasons why ETSs around the world are switching to auctioning for allocating allowances. Looking at the case of EU ETS we can also see that the tendency of the energy sector to be affected by windfall profits has been accounted for by a much faster transition to auctioning. Since 2013 all power generators have exclusively gotten their allowances via auctioning (“Free Allocation,” n.d.).

Although it is quite common for ETSs to start with high rates of free allocation and to switch to auctioning in a piecemeal fashion, according to some research, the link between auctioning and carbon leakage might be exaggerated in the case of EU ETS. According to the research from European University Institute, no

strong evidence was found that proved that entities that take part in EU ETS were burdened to an extent that would hinder competition (Labandeira et al., 2017, p. 4-5). Similarly, according to Dechezlepretre et al., there was no evidence of emission shifts (or carbon leakage) from the EU to overseas (Dechezlepretre et al., 2022, p. 12). Moreover, the research from European University Institute points out that the criteria the EU was using for assessing vulnerability against leakage were not correctly chosen, and hence, the number of sectors listed as vulnerable surpassed the actual number of vulnerable sectors (Labandeira et al., 2017, p. 1, 4-5). The changes to these criteria made in phase four of EU ETS should decrease the number of vulnerable sectors from 177 to around 55 (ibid.). This can increase the overall stringency and efficiency of the system. According to these findings, carbon leakage is a much less serious threat than it is perceived, which weakens the arguments against auctioning. What's more, according to the same research, evidence was found that pass-through of free allocation prices (hence windfall profits) is also attested in non-electricity industrial sectors (ibid.).

Looking at the EU ETS design on four phases regarding allowance allocation, we see a trend of decreasing cap size, as the control of the Commission gets greater over time. In the first two phases, Member States announce their preferred allowance allocation methods through their NAPs. The Commission helps with this process through its guidance documents and through checking the NAPs after they are submitted. However, these guidance documents mention different allocation methods mostly in an advisory manner. For example, in the guidance document for the NAPs in the first phase, the Commission recommends Member States consider product-based benchmarking for the allocation of allowances (European Commission, 2004). Similarly, the guidance documents also remind the Member States of the possibility

that using a well-calculated benchmark system can help the early actions in emission abatement (ibid.). However, Commission does not force the Member States to use a specific benchmark system, nor does it force the Member States to use any specific allocation method. The Commission, however, asks the Member States to indicate what forecasts they use and justify their choices (ibid.). However, parallel with the fear of carbon leakage, the Commission uses a specific limit for auctioning. A Member State could not auction more than 5% of the allowances it allocated in the first phase, in the second phase this number rises to 10% (Directive, 2003/87/EC).

Similar to other design options we see a rise of ambition in the third phase regarding the allocation of allowances, and much less was left to Member States. Grandfathering has ceased to be an accepted allocation method, and a combination of auctioning and benchmarking has been used, where benchmarks were decided centrally (Lecourt, 2013, p. 125). Due to high price transferability and the danger of windfall profits, the electricity generation sector got all of its allowances with auctioning (OJ C 99, 31.03.2011, p. 9). Some Member States, that further need to modernize their energy system, were allowed to use free allocation in their power sectors (OJ C 99, 31.03.2011, p. 9). Industrial entities received free allowances using the product benchmarking method in phase 3. If they were listed as a sector vulnerable to carbon leakage, they were allocated free allowances as if they were in full compliance with all the benchmarks (“EU Emissions Trading System (EU ETS)”, n.d.). For the aviation sector, 15% were auctioned, 82% were allocated for free and 3% were left in reserve for new airlines (ibid.). Overall, 57% of the allowances were auctioned in the third phase (ibid.).

In the third phase, we also see direct central help from the Commission for the new entrants, something that was missing from the preceding phases. In the first

two phases, Member States were advised by the Commission to use benchmarks for better acclimatization of the new entrants. However, in the third phase, they created an EU-wide New Entrants' Reserve, in which 5% of the EU-wide allowances for phase 3 were allocated for the use of new entrant companies (ibid.).

The fourth phase of the EU ETS goes a small step beyond the third phase. Low-income Member States can still make use of free allocation in the power sector ("Allocation to modernise the energy sector," n.d.). For industry entities, the phase 3 mixture of benchmarking and auctioning is used ("EU Emissions Trading System (EU ETS)", n.d.). Similar to phase 3 sectors that are marked as prone to carbon leakage still get free allowances, however, the list for carbon leakage-prone sectors is updated and they are fewer in number (OJ L 120, 8.5.2019, p.20). In phase 4 about 57 % of the overall allowances will be auctioned ("Emissions cap and allowances," n.d.). 90% of these allowances will be auctioned to Member States based on their verified emissions in 2005 or an average of verified emissions between 2005 and 2007 (OJ L 431, 21.12.2020, p. 66). The remaining 10% is distributed among certain lower-income Member States (ibid.). Lastly, beginning with phase 4, if the clearing price in an auction is considerably cheaper than the secondary market value of allowances, the auction gets canceled to keep the allowance prices stable (ibid.)

5.4 Flexibility options

In order to facilitate compliance and ease the entities into the system, and also protect the system against the effects of economic/technological adversities, many ETSs provide different flexibility options for entities. Although these flexibility options might show serious differences in each system, they can be grouped into two categories. These are temporal flexibility options and carbon offsetting ("Flexibility

provisions,” n.d.). Temporal flexibility options refer to time-based flexibilities on credits that are already part of the ETS. The two most common temporal flexibility options are banking and borrowing (ibid.). Carbon offsetting refers to a substitution of credits earned from mechanisms that lie outside of the ETS, such as CDM and JI (ibid.).

Banking refers to the ability of entities to hold on to their allowance surplus and make use of them in future compliance periods (ibid.). Without this ability, allowances lose their validity at the end of a compliance period. The logic behind banking is that cost of abatement tends to differ in time, and it might be the case that the cost of abatement today will be cheaper than the cost of abatement in the future (ibid.). Therefore, holding on to allowances when abatement is easy, hence surplus allowances, can help abatement in the future, in case the abatement cost gets higher. Therefore, it can be said that banking protects the ETSs against sharp changes in abatement costs. There are other possible benefits of banking. Firstly, the aforementioned protection against abatement cost changes, and facilitation of compliance in rises in this cost via surplus values, could be said to increase the cost-effectiveness of the system, especially in times when abatement costs increase (“Banking of units under EU ETS, California and Australia emission trading schemes,” 2012). This increased security and assurance are cited to increase allowance price stability (ibid.). Moreover, banking is also seen as a feature that rewards early action (ibid.). It is because entities who take early action and made a considerable amount of abatement can save their allowances. These saved allowances reward early actors by decreasing abatement costs in the future, or if they choose to sell the allowances, they get profits. However, by some scholars, banking

was also seen as a reason for low carbon prices, as allowing to hold on to surpluses might result in the overallocation of credits(ibid.).

The EU ETS is a case that showcases the effects of banking because, at the commencement of the system, banking of allowances to future compliance periods was not allowed however, the banking has been allowed beginning from phase 2 (Ellerman et al., 2015, p. 1). Therefore, EU ETS allows us to look at the same system under two very different conditions, regarding banking. When we look at the end of the second phase of the EU ETS, we see that there are 2 billion surplus allowances overall (ibid.). This is cited as one of the reasons for the low allowance price (€ 5) of the EU ETS (ibid.). However, during the first phase of EU ETS, where banking was not allowed, the allowance prices sunk to practically € 0 (ibid.). According to this logic, banking works as insurance for entities against future adversities and shocks. In the case where entities, as rational agents, predict future adversities, they might take more actions now, which would protect the ETS and the allowances prices in the future (Ellerman et al., 2015, p. 18-19). This means that, even though the adversities tend to lower (or in some cases increase) the carbon prices, through banking and rational choices of entities, the market can be protected from collapsing.

Borrowing refers to the ability of entities to use allowances from future compliance periods beforehand to be deducted from the amount of allocation in future compliance periods (“Flexibility provisions,” n.d.). Similar to banking, borrowing is thought to increase price stability, cost-effectiveness, and ease of compliance (“Borrowing of carbon units under EU ETS, California and Australia emission trading schemes,” 2022). The potential threat of borrowing on the system is that it might incentivize entities to delay their abatement actions (ibid.). This might be detrimental to the probability of achieving future mitigation goals. Furthermore,

borrowing from future periods, although making abatement easier during the present time, might result in exhaustion or insufficiency of flexibility options in the future, which is a phenomenon called “cascading borrowing” (ibid.). Therefore, in a case where borrowing is allowed without sensible limitations, compliance can get quite hard in future periods, and the ETS becomes vulnerable to adversities.

As mentioned before, some ETSs allow entities to surrender credits that they earn through external mechanisms, in lieu of allowances they get ETS internally. This mechanism is called carbon offsetting or credit offsetting. Although many countries and supranational organizations work for mitigation individually and domestically, ultimately, the sectors and places where mitigation occurs are environmentally unimportant (“Flexibility provisions,” n.d.). This means that a carbon emission mitigation made outside of the jurisdiction of a specific system is no less valuable to the domestic environmental well-being of that specific system compared to abatements made domestically. The reasoning behind carbon offsetting is that, if abatement outside of a specific system is less costly than a domestic one, it is environmentally and economically more logical to invest in the abatement outside, which would make the same good to the environment but with less money, thus increasing the cost-efficiency (ibid.). Moreover, by decreasing the abatement costs, carbon offsetting aims to facilitate compliance. Carbon offsetting mechanisms allowed differ drastically in each system. For example, only some systems make use of domestic credits (ibid.). These are abatements made from sectors not covered by an ETS or offsets made in other regions of a state where a state-wide ETS does not exist. However, the most common offsetting mechanisms are the ones that are made possible by the Kyoto Protocol. Those are the Clean Development Mechanism (CDM) and Joint Implementation (JI).

The CDM stems from Article 12 of the Kyoto Protocol (“The Clean Development Mechanism” n.d.). The CDM allows Annex B countries of the Kyoto Protocol, which are burdened with emission limitation commitments, to carry out an emission mitigation project in a developing country (ibid.). After conducting CDM projects, countries earn certified emission reduction credits (CER), which can be used for 1 ton of CO₂ emissions each (ibid.). This 1 CER, 1 ton of emission equality refers to the Kyoto Protocol targets, how CER credits get substituted for internal ETS credits might differ in each system. CDM projects have a large scope, which includes the building of renewable power plants, forestation, etc. (Earth Journalism Network, 2016; “The Clean Development Mechanism” n.d.). However, projects cannot include the following: nuclear energy, carbon storage, carbon capture, and preventing deforestation (ibid.). There are other conditions that a project needs to satisfy to be qualified as a CDM project. Ultimately a project must be accepted by CDM Executive Board and the host country to qualify (ibid.). To get qualified by CDM Executive Board, a project must satisfy different conditions, the most important of which is additionality (“The Clean Development Mechanism” n.d.). The additionality of a project means that it results in additional emission mitigation compared to counterfactual analyses and projections (Earth Journalism Network, 2016). This means that a sheer decrease in emissions is not enough for a project to be qualified. The decrease should be proven not to be coincidental, which requires research and inquiry.

Apart from increasing cost-efficiency, facilitating compliance, and decreasing overall emissions, CDM projects are argued to have other benefits. For example, stimulating sustainable development in developing countries is one of them (“The Clean Development Mechanism” n.d.). However, although CDM seems to have good

intentions and some benefits, CDM projects and the substitution of their credits in ETSs are quite controversial and some ETSs, including the EU ETS, opt not to accept them anymore (“EU Emissions Trading System (EU ETS)”, n.d.). This controversy brings us to the criticisms of CDM and, in fact, criticisms of other offsetting mechanisms as well. Firstly, as mentioned before, proving additionality requires high amounts of research. The amount of research and the bureaucracy required for every single project makes CDM both costly and slow (Earth Journalism Network, 2016). Moreover, it is argued that because of the challenges of proving additionality, numerous projects have questionable reductions (Earth Journalism Network, 2016). For example, according to the report of CDM-Watch, certain projects that intend to reduce HFC-23 resulted in an overall increase in carbon emissions, which constitutes non-additionality and also leakage (Earth Journalism Network, 2016). There are also criticisms about CDM that affect host countries. According to some criticisms, CDMs might impede more ambitious targets in host countries and developed countries (Buen, 2013, p. 2). However, according to research made by Buen, there is no evidence that CDM projects show a negative effect on the environmental goals of developing countries (Buen, 2013, p. 2,8). The same research also cites the South Korean ETS and Mexican environmental law, to argue that CDM projects might support host countries for more ambitious environmental goals (Buen, 2013, p. 8). Lastly, CDM projects are criticized for not helping various parts of the world, which might create injustice. The reason for this criticism is that a majority of CDM projects are hosted by Asian countries with relatively big economies, such as India and China while neglecting other regions such as Africa, which hosts only about 2 % of the projects (Earth Journalism Network, 2016).

The Joint Implementation (JI) finds its legal base in Article 6 of the Kyoto Protocol (“Joint Implementation”, n.d.). It is similar to CDM in the sense that it rewards countries for emission reductions made outside with emission reduction units (ERU), which can be used for national Kyoto targets (ibid.). They can also be used in ETSs in lieu of allowances if the specific ETS allows the use of ERUs. The main difference between JI and the CDM is that JI refers to emission abatement projects made by Annex B countries (developed countries) in other Annex B countries (ibid.). Similar to CDM, JI intends to raise cost-efficiency while carbon abatement and induce environmental investment and technology transfer to host countries (ibid.). The JI is also similar to CDM in the sense that each project should be verified if project conductors wish to earn ERUs, the verification process has similar aspects such as additionality (ibid.). This makes JI open to criticisms such as the difficulty of proving additionality. Research conducted by Stockholm Environment Institute found that 73 % of the ERUs out of 60 randomly selected JI projects came from projects with non-plausible additionality remarks (Kollmuss et al., 2015, p. 5, 6, 38, 72, 101). There are also criticisms that some of the JI projects are carried out with malignant motives, which focus more on credits and as a result harm the environment more than they abate emissions. An example is given of this in another report made by Stockholm Environment Institute. According to the report, three chemical plants in Russia increased their HFC-23 and sulfur hexafluoride emissions above unprecedented levels before the implementation of a JI project, just to be able to abate more HFC-23 and sulfur hexafluoride with the help of a project and gain more credits (Schneider et al., 2015, p. 1061-1062).

Because of the aforementioned problems like issues with additionality and risk of malignant motives, that JI and CDM projects might bring about, the use of

ERUs and CERs in place of allowances in ETSs is controversial. Therefore, they are not universally accepted in all ETSs. Many ETSs take precautionary measures that either limit their use or leave them out of the system altogether. For example, in the first phase of the EU ETS, CDM and JI credits could be used with no limits (“EU Emissions Trading System (EU ETS)”, n.d.). In the second phase, the use of credits was still accepted but the amount that is planned to be used in phases 2 and 3 combined needed to be included in NAPs (“Use of international credits,” n.d.). In the fourth phase, their use is not accepted (“EU Emissions Trading System (EU ETS)”, n.d.).

The use of ERUs and CERs and how their use was controlled have resulted in additional problems in the EU ETS. EU ETS first planned for the Member States and installations to use these credits as an additional option, a lifeline that can be used to supplement the domestic mitigation efforts, as introduced in the Marrakesh Accord in 2001 (Stephan, 2014, p. 6). However, it was found out that installations have not been using the credits as they were intended, many installations with allowance surplus, ended up buying offset credits, so that they can save their allowances for the future (Stephan, 2014, p. 4). EU tried to streamline how credits were used and limit their use, however a sharp decline in the allowed credit use which is bound to uncertain metrics have decreased the demand for offset credit use (Stephan, 2014, p. 6-7). Beginning with the fourth phase of the EU ETS, their use is not allowed.

5.5 Monitoring Reporting and Verification (MRV)

The MRV is a term that characterizes how carbon mitigation actions should be carried out. The term originated from the Bali Action Plan during negotiations of the United Nations Framework Convention on Climate Change in 2007 (“What is

MRV,” n.d.). The term comes from the idea that carbon mitigations should be made in a measurable, reportable, and verifiable fashion (ibid.). This is important because achieving measurable, reportable, and verifiable mitigations, ensures accurate results and accurate data, which is not only good for overall emission reductions but is also good in the sense that it increases transparency, lesson-learning and can facilitate ETS design when made prior to setting up a new ETS. Moreover, when correctly practiced MRV can facilitate the enforcement of national carbon mitigation policies, hence improving compliance (“MRV & Enforcement,” n.d.). Moreover, MRV, when practiced correctly, can increase trust in mitigation policies and also information about the system, both of which can incentivize more investments in carbon mitigation (“What is MRV,” n.d.).

Though the idea of monitoring, reporting, and verifying seems uncomplicated, different countries and ETSs have different approaches to how to do MRV. Monitoring may differ in, which parts of mitigations are monitored or what sectors or actors are monitored. Similarly, both the frequency as well as the scope of reporting differ in each system. Lastly and expectedly, verification is not immune to such differences either. However, delving into specific details of MRVs is out of the scope of this chapter, but we will be going through two main types of MRVs to get a better picture of the above-mentioned variations. The two main types of MRVs are international MRVs and domestic MRVs. Countries can be obliged to put themselves through MRV, because of an international convention that they are part of, or they can implement domestic MRVs to increase compliance with their existing GHG policies as well as get data on mitigation which can help with fine-tuning an existing GHG policy (e.g. the ETS) or accumulating data before setting up a new GHG policy.

Before delving into some examples of domestic MRVs, we will be looking through the international framework for MRVs. It is helpful for us to look at this before the domestic ones because it has less variation for the compliant countries compared to domestic systems, and also chronically it precedes the domestic MRVs. The basis of MRVs lies in the United Nations Framework Convention on Climate Change (UNFCCC) (1992), as it faces all parties with reporting obligations and developing countries (Non-Annex I) with communication obligations (United Nations Climate Change Secretariat, 2014, p. 11-12). The guidelines for preparing these communications and reports went through certain changes between 1992 and 2022 (ibid.). With UNFCCC Conference of Parties (COP) 13 (Bali Convention), verification was also added to the above-mentioned communication/reporting obligations, creating the MRV framework for the first time, to increase the action of mitigation in the developing countries that are part to the convention (ibid.).

In 2009 the Consultative Group of Experts (CGE) was reconstituted to provide technical support and help with capacity development for developing parties to the convention (United Nations Climate Change Secretariat, 2014, p. 11-12). In 2010, COP 16 was assembled, in which national communications were scheduled to happen once in four years, and biennial update reports (BURs) were scheduled to be delivered every two years, to improve communications (ibid.). BURs are accompanied by international consultation and analysis (ICA) (ibid.). COP 16, streamlined the structures of MRVs and introduced new elements into MRVs (United Nations Climate Change Secretariat, 2014, p. 12-13). Additionally, COP 16 introduced registries for nationally appropriate mitigation actions (NAMAs), which are actions, parts of the convention take, to reduce emissions from a business-as-usual projection (United Nations Climate Change Secretariat, 2014, p. 12, 13, 15,

24). Including registries for NAMAs, COP 16 increased the availability of outside help for NAMAs from developed nations or investors. Domestically, nations can determine rules and make plans for domestically supported NAMAs and report on their progress via BURs, we see the domestic part of the MRV (ibid.). With national communications and ICAs that are made with guidance from BURs, we see the international parts of MRV (ibid.).

Although we saw different parts of the international/domestic MRV net, we did not go through specifics about what is being MRVed. As mentioned before, what elements are MRVed might change for every country or ETS. However, we can enumerate a list of elements that are MRVed in the international MRV framework, that was mentioned above. According to the UNFCCC's report, these are what MRV measures/monitors in the international framework: GHG emissions/removals by sinks, emission reductions (can be made possible with improving removal by sinks or other mitigation actions on different sectors), progress with mitigation actions, the degree of achievement of sustainable development goals that are in relation with climate change (mitigation/adaptation), any supports received for the realization of the above-mentioned goals (United Nations Climate Change Secretariat, p. 46). According to the same UNFCCC report, these elements are reported by the current international MRV framework: data on GHG emissions and reductions (including removal by sinks as well as reduction from different sectors), progress with implementation of any mitigation actions, plans/assumptions/methodologies of domestic actors relating to mitigation, sustainability objectives, information on problems, constraints, requests for international help, etc. (ibid.). Lastly, according to UNFCCC all information reported through MRV (including BURs), need to be verified (ibid.). These elements characterize the scope of the international MRV

framework; however, it should be kept in mind the scope of MRV has been expanded in a piecemeal fashion, hence, all the elements listed were not part of the scope from the beginning of the MRV. The list given above is an exhaustive, but simplified, list that stems from the 2014 report of UNFCCC.

Just like the international MRV framework, countries can have their domestic MRVs, to support other policies such as ETSs, or to gather data and build capacity for such policies. Unlike the international framework, domestic MRVs tend to differ. For example, in the EU ETS, every entity in the ETS should annually self-report their emission and mitigation data, as well as other related information, all of which must be verified by accredited verifiers (“MRV & Enforcement,” n.d.). This differs from the international framework in the sense that reporting is annual, and verification is more thoroughly made by certified actors. Other differences regarding the frequency and scope of reporting and the ambitiousness of verification standards are present in other domestic MRVs. As EU ETS progressed its MRV policies became stricter (Oudenes et al., 2022, p. 16). Installations’ operators need to provide Competent Authorities with a Monitoring Plan, that has information on how the monitoring would be done and which tiers and metrics would be used in what way, compliant to the new MRV rules prepared by the Commission (Oudenes et al., 2022, p. 16). After Monitoring Plans get accepted by the Competent Authority, the installations need to comply with them and at the end of each year they need to prepare an Annual Emissions Report (ibid.). This report needs to get verified by certified verifiers, which results in a Verification Report (ibid.). These two reports get sent to the Competent Authority, sometimes an Improvement Report gets sent to the verifier in cases of non-compliance or changes in monitoring methods, etc. (ibid.). The MRV process not only got better with more streamlined metrics but also

through EU-wide changes in Competent Authorities and how they work. According to the EU, by the third phase, MRV practices got more centralized as more Member States switched to nation-wide Competent Authorities from regional Competent Authorities (Oudenes et al., 2022, p. 22). Moreover, in the third phase the communication and coordination between Competent Authorities have been strengthened (ibid.)

5.6 Linking

A global carbon market would be theoretically the best market-based solution for mitigating GHGs. It is because such a market would decrease GHG emissions all around the globe, and it wouldn't cause problems like carbon leakage or unequal competition that local ETSs might cause. However, implementing such a complex system in a top-down manner globally would be almost impossible to achieve, because of differences in production, culture, lifestyles, national interests, etc. Moreover, trying to use a "one size fits all" design can result in a system that fits some countries better than others, creating ethical problems. For these reasons linking already existing ETSs, comes as an option. Linking means combining two or more ETSs, creating an overall larger carbon market. It has two main types which are direct and indirect linking ("Linking," n.d.). Direct linking means that the allowances from each linked system can be surrendered in both systems (ibid.). This can be unilateral (in which, allowances from one system can be surrendered in the other system, but not the other way around), or bilateral (in which, allowances in both systems can be surrendered within the entirety of the linked systems) (ibid.) Indirect linking refers to the mutual acceptance of secondary credits (offsetting) such as CDM or JI credits, by more than one system (ibid.). If two different ETSs accept the

same offset credits, they are characterized as indirectly linked, as they accept some common allowance (offset credits), which can be surrendered in both systems but not an overall match.

Linking has many benefits. First of all, by linking two systems with different mitigation options or prices, systems get introduced to multiple mitigation options, within which they can choose the cheaper option, hence increasing cost efficiency (ibid.). Moreover, linking ETSs would create larger carbon markets. Larger carbon markets have a bigger chance of being more liquid (Ranson and Stavins, 2014, p. 1-2, 8-9). Having bigger markets and being more liquid, means that the market can be more stable, more impervious to shocks, and harder to manipulate (“Linking,” n.d.). Therefore, linking might give the carbon markets stability and longevity. Furthermore, linking reduces risks of unequal competitiveness and carbon leakage, by making carbon prices the same in a larger area (ICAP, 2020). Lastly, linking can encourage international cooperation for climate change mitigation (ibid.). It might do so by, facilitating collaboration and technology transfer as well as setting a more climate mitigation-oriented agenda for both the locations ETSs of which are being linked.

As mentioned above linking has many benefits. However, linking two ETSs is easier said than done, because differences in the ETSs might make them harder to reconcile, which, without substantive work put into harmonization of the systems, can cause problems that might make the overall ETS less effective. Let us go through different sub-mechanisms of ETS and how they play a role and/or get affected by linking. Scope and coverage (of GHGs and sectors) do not tend to create a big barrier against linking (Kachi et al., 2015, p. 5). Linking of ETSs that grant entities to opt-in or opt out of the scheme and do so with different parameters, might result in too

many entities opting out which might cause overallocation of allowances in the market (Kachi et al., 2015, p. 6). Unlike sector and GHG coverage; different ambition levels, cap levels tend to pose as a much bigger barrier against linking (ibid.). For example, linking a quite stringent and a much less stringent system might make the ETS environmentally less effective, by making the stringent system laxer (ibid.). Such a linkage could decrease carbon prices in the more stringent system through the equalization of carbon prices in each system (Kachi et al., 2015, p. 6-7). Linking systems with different cap types (absolute/intensity-based) is possible but it would still require harmonization to ensure better economic/environmental performance as well as better carbon accounting (ibid.).

Linking two systems with different temporal flexibility options is also quite hard and might decrease the performance of ETSs (Kachi et al., 2015, p. 7-9). For example, linking a system that has a high (unambitious) carbon cap with an ETS that allows banking, might introduce carbon surpluses to the system which might be banked into the future and decrease the price signal for mitigation (Kachi et al., 2015, p. 7-8). However, banking, in the case where caps are successfully aligned with each other, does not pose a barrier against linking (ibid.). Borrowing, on the other hand, is riskier. By introducing borrowing from one system to the other, future carbon debts of one system (if the system had lax borrowing policies) can be carried to the other system (ibid.). This brings the negative effects of borrowing to the linked system.

Differences in price ceilings are floors are also possible barriers against linking. Firstly, decisions about price are different than many other parts of an ETS in the sense that it constitutes an integral part of the overall design deliberately chosen by policy-makers, who care for the credibility of the system, hence price policies are quite political and less technical than some other mechanisms of the ETS

(Kachi et al., 2015, p. 8). This makes them harder and more controversial to harmonize (ibid.). Moreover, linking systems with differing price ceilings and floors would quickly alter carbon prices in the entirety of the system, hence it is an element that needs to be harmonized before linking the systems, to have stable carbon prices in all of the linked systems (ibid.). Lastly, linking systems with differing price ceilings and floors might undermine the floors and ceilings of one another, especially in cases where one of the systems has comparably cheaper and more expensive carbon prices (ibid.).

In comparison with many of the elements above, MRV does not require harmonization prior to linking (Kachi et al., 2015, p. 9). However, harmonized MRV standards might make linking easier with increased robustness, credibility, and transparency (ibid.). These make the system more stable and efficient (ibid.). Moreover, the harmonization of emission registries improves the traceability of each action within the subsystems of the linked entirety which facilitates carbon accounting and protects the system from errors such as double counting (ibid.).

Another very important factor that needs to be harmonized is compliance provisions and measures (ibid.). The measures taken to enforce compliance do not have to be the same, but they should be comparable to ensure compliance, and also the fines that need to be paid in the case of failure to surrender allowances should be comparably higher than carbon prices in all of the subsystems (ibid.). Failing to establish such a design could decrease the incentives to comply. For example, if linking results in higher carbon prices in one subsystem compared to penalties, the entities within that subsystem are incentivized to sell their allowances without mitigating emissions and pay for the penalties with the allowance revenues (ibid.).

Lastly, policies about offset credits might also constitute barriers to successful linking. When two systems that accept different offset credits get linked, all systems have at least indirect acceptance of all the offset credits within the system (Kachi et al., 2015, p. 9-10). This might be incompatible with the design choices of the subsystems, especially if they accept quite different sets of offsets or if they have different choices regarding limitations on offset credits. Furthermore, not harmonizing the way how each offset credit would be processed might result in problems with carbon accounting and double counting (ibid.).

EU ETS was indirectly linked to several other ETSs due to the mutual acceptance of carbon offset credits from CDM and JI. However, due to problems mentioned under the flexibility options section the use of these credits is no longer accepted, so EU ETS has no indirect links as such. However, beginning from January 1st of 2020 Swiss ETS and the EU ETS has been linked (OJ L 322, 7.12.2017, p. 3).

5.7 Earmarking revenues

As more and more ETSs opt for auctioning for the allocation of allowances, revenues resulting from these auctions have started to constitute a considerable amount of money. Therefore, questions about how to earmark this revenue were raised. Many countries use these revenues to support ETS or other carbon mitigation-related targets, such as renewable energy, energy efficiency, sustainable transport, R&D, etc. (Santikarn et al., 2019; Schumacher et al., 2021, slide 11). Strategic and efficient use of revenues can be beneficial in many different ways. First of all, expenditures on areas like renewable energy, and energy efficiency, can result in additional emission reductions in sectors both inside and outside of the ETS (Wiese et al., 2020, p. 1678-1679). The use of revenues can also result in the emergence of more cost-effective

reduction options, which lowers the financial and societal costs of mitigation, as well as reduces energy bills for end-users (ibid.). Similarly, efficient use of revenues for energy efficiency innovations can reduce the energy demand, which can have other positive effects on health, air quality, etc. (ibid.). These two benefits together, also with the help of direct assistance to end-users such as direct bill assistance, can help make carbon mitigation more just and less costly for underprivileged groups such as people from the lower socio-economic classes and minorities.

Earmarking revenues strategically and efficiently can help make ETSs more sustainable and stringent, using political support (Wiese et al. 2020, p. 1679-1686). Via making decarbonization less costly and more just, increased and sustainable political support can be reached, which may result in an ETS, that is more stringent and long-lasting (ibid.). Parallel with this, Santikarn argues that revenue use for public projects/services is more intuitive, thus preferable, for the general public, compared to direct payment of the same amount, as in taxes (Santikarn et al., 2019, p. 14). This preference can improve the perception of carbon regulations on the general public, which would increase public support (ibid.).

In the EU ETS, each Member State has the freedom to use their share of the revenue as they wish (Santikarn et al., 2019, p. 11). However, the EU ETS Directive encourages members to use at least half of their share for climate- and energy-related purposes (ibid.). This encouragement seems to be effective as 80% of the revenue from the period between 2013-2017 was used or planned to be used for climate- and energy-related purposes. In addition to direct use of the revenue by the Member States for environmental goals, the EU ETS has also different funds which allow the Member States to invest in EU-wide environmental solutions/innovations. Examples of these funds are the Innovation Fund and the Modernization Fund. The Innovation

Fund aims to help, the development of innovative low-carbon technologies (“What is the Innovation Fund?,” n.d). The Modernization Fund, on the other hand, helps 10 Member States of the EU to meet 2030 targets by helping them to modernize energy systems and increase energy efficiency (“Homepage”, n.d.). The 10 Member States which can benefit from the Modernization Fund are Bulgaria, Croatia, Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia (ibid.).

5.8 Market stability mechanisms and allowance prices

As mentioned before, the price of allowances tells us a lot about the stringency of an ETS. ETSs provide two-way mechanisms to incentivize innovations for carbon mitigation. The one is of course the cap that gets stricter all the time, which tells all the entities that, even though they are not quite carbon-intensive, they are going to have to abate their emissions as the cap will eventually go below their level of emission as well. Maintaining this mechanism is easy because it only requires a cap that gets lowered in planned intervals and a penalty for failure to surrender allowances which must be more expensive than the carbon allowance prices. This mechanism starts to malfunction when allowance prices skyrocket and come to levels that are comparable with the penalties. This makes the ETS less stable as entities might be incentivized to be idle about their carbon abatement goals. The second mechanism that ETS uses to incentivize carbon abatement innovations is the price signal that every allowance carries. This means when allowance prices get more expensive (but still cheaper than penalties), they carry a bigger price signal to companies and also -in some cases- to the customers who purchase goods and services from these firms. Thus, more expensive allowances incentivize the companies to invest more in carbon abatement innovations, instead of allowing them

to wait until the cap gets stricter to increase their investments. For this reason, it is also important for carbon prices to not go too low.

As carbon allowance price has important effects on the functioning of an ETS and also its environmental stringency, price volatility is an unwanted result that might make the market unstable or eventually crash. Protecting price and market stability in ETSs is challenging because, unlike many other markets, allowances are issued only in limited amounts and the amounts issued get lower each period. Since everything is fixed (production of allowances, decrease in the amount of production, methods regarding allocation, banking, etc.) ETSs do not have a lot of mechanisms to adjust themselves against changes in the market or outside the market (Acworth et al., 2020, p. 4). This makes ETSs and the carbon allowance prices prone to the effects of outside shocks (ibid.). Hence, if ETSs are not protected with market stability mechanisms they can suffer high price volatility, where demand for allowances sharply and quickly change. Examples of such times are big economic crises (such as the 2008 crisis) and other events such as the Covid-19 pandemic. Therefore, market stability mechanisms (MSMs) are being used by almost all of the ETSs albeit, their designs differ quite a lot.

Instead of controlling the carbon markets all the time, MSMs tend to get activated when certain conditions -which show volatility risk- are met. These conditions are called triggers (Acworth et al., 2020, p. 4,5). The first main distinction among MSMs is how they get triggered. Some of them get triggered by certain price thresholds, such as when the allowance prices fall below a certain value or when it exceeds a certain value (ibid.). Other MSMs get triggered by quantity thresholds, as in when the number of allowances in circulation gets lower or higher than certain thresholds (Acworth et al. 2020, p. 4-14).

As mentioned before, it is important to keep allowance prices from getting too cheap. In addition to the reasons about price signal, low allowance prices are also unwanted because in the case where allowance prices go lower than investments that should be made for carbon abatement, then the entities are hardly incentivized to take action (Acworth et al., 2020, p. 5). In order to protect ETSs from extremely low allowance prices, price floors can be used (IEA, 2020, p. 30). However, price floors have two different types. One of them is soft price floors. Soft price floors, or auction reserve prices, work with bidding prices in auctions (Acworth et al., 2020, p. 5). When the bidding price goes lower than a certain threshold, the bidding gets rejected, resulting in some allowances remaining unsold (ibid.). This supports the price level from falling until bids with higher prices start to emerge (ibid.). However, this mechanism only works for allowances sold in auctions, and it does not affect allowances sold via other means such as trading between entities (ibid.). The other type of price floor is the hard price floor. Hard price floors work similarly to soft ones in the sense that they prevent allowance prices to drop below a certain threshold, but the hard price floor encompasses all of the allowance markets including the primary market (auctioning) and secondary markets such as trading between entities (ibid.). This can be achieved by the government buying all of the unsold allowances in circulation at a predetermined price (ibid.) This price floor is more effective in the sense that it assures with great certainty that the price won't go under a certain threshold (Wood & Jotzo, 2011, p. 11), however, excessive regulation and vigorous intervention might have economic consequences for the government, such as loss of revenues (ibid.). The allowances that are bought (or not sold) by the government can be introduced to the market in future auctions, they can be placed in a reserve which would sell them once the price trigger is inactivated, or the

allowances may be invalidated for good, which would constitute an additional lowering of the cap (Acworth et al., 2020, p. 6).

Just like low allowance prices, overly high allowance prices can also undermine an ETS. Allowance prices that are too expensive can put entities at a disadvantage and also create an environment that is even more unfavorable for new and/or small entities, which might lack the capital to afford allowances. This might make compliance harder and create injustice and inequality. Moreover, overly expensive allowance prices might make the carbon markets a politically unpopular option, which might decrease the longevity of the system. In addition to that, overly expensive allowance prices might exacerbate carbon leakage, which would undermine the environmental integrity of the ETS. Lastly, unprecedented highs (just like lows) of allowance prices might make the market less stable and it could make planning for the future quite hard. This can decrease the willingness to put money into research and development for carbon-abating technologies.

To fight overly expensive allowances ETSs can make use of price ceilings. Just like the price floors, the price ceilings can also be classified as soft and hard (Acworth et al., 2020, p. 9). A cost containment reserve (CCR) is a popular implementation of a soft price ceiling (ibid.). This is a state-owned reserve for allowances. When prices increase due to increased demand or decreased supply, the allowances in the reserve get sold at fixed prices (instead of being auctioned) (ibid.). The reserve can be filled with different methods. The reserve can buy excessive allowances in circulation to sell them later once the price exceeds a threshold, or the reserve can also borrow allowances from future compliance periods if needed (ibid.). Alternatively, new allowances can be issued and added to circulation to keep the

price lower than the threshold (as is the case in RGGI), which can harm the environmental integrity of the system (ibid.).

The second type of price ceiling is the hard price ceiling. Instead of adding more allowances in the circulation to help with increasing prices, hard price ceilings put an ultimate cap on the prices (Acworth et al., 2020, p. 11). When this price level is exceeded an unlimited number of compliance methods are made available until the prices lower to the trigger value needed for inactivation (ibid.). An example of a hard price ceiling can be seen in New Zealand ETS, where after some price threshold, or in the case where there are not enough allowances in circulation, entities are allowed to temporarily stop surrendering allowances for their emissions (ibid.). For their emissions, which they lack allowances to surrender they might pay a fixed fee, which practically works like a carbon tax (ibid.). Just like hard price floors, hard price ceilings are extremely effective in keeping the allowance prices from being too expensive (ibid.). However, since they increase the number of allowances, they can make the number of allowances irrelevant by making them optional to surrender which both jeopardize the environmental integrity of the ETS. Therefore, hard price ceilings should be implemented with extensive planning.

As mentioned before, market stability mechanisms can be triggered by allowance quantities as well. The hard price ceiling, hard price floor, and soft price floor are price-triggered systems. The soft price ceiling is also price-triggered as the use of cost containment reserves (CCR) functions with the help of triggers that monitor allowance prices. However, emission containment reserve (ECR), which is a mechanism that is quite similar to CCR, is classified as a quantity-based mechanism (Acworth et al., 2020, p. 14). ECR is similar to CCR in the sense that it also takes allowances out of circulation and releases them back at fixed prices as needed.

However, they get triggered once the number of allowances in circulation exceeds certain thresholds. CCR, on the other hand, gets triggered once the prices of allowances exceed certain thresholds. One of the most prominent examples of such a system can be seen in the EU ETS with the name, Market Stability Reserve (MSR) (EU Emissions Trading System (EU ETS), n.d.). The MSR was not a part of the EU ETS during the early phases of its implementation, but due to overly low prices of allowances, it was added to the regulatory framework in May 2015, to become operational in 2019 (Wettestad, 2018, p. 45-46). MSR is a reserve that takes up the excess total number of allowances in circulation off the market to regulate prices and increase stability, it also releases the allowances it has in case of undersupply (European Commission, 2021a, p.17). It is an automated mechanism, so no actors can influence how it works (European Commission, 2021a, p. 21). Beginning with 2023 it will be able to invalidate allowances taking them out of the market indefinitely in case the reserved allowances surpass the previous years' auction volumes (European Commission, 2021a, p. 24). Overall, analysts argue that MSR indeed contributed to the allowance price rise and make the ETS more resilient to future price shocks, but the effect is argued to be not quite big, as there were other possible reasons for the price hike as well, such as the increased perception of EU ETS of becoming more ambitious in the future (European Commission, 2021a, p. 3, 4, 44). Although, overall, the MSR is seen as a good and effective mechanism, its rules are seen to be too complicated for some actors, which can decrease the clarity and transparency of the market structures (European Commission, 2021a, p. 6).

Another method that has been used in the EU ETS for managing allowance prices, is the use of backloading. In order to fight the low allowance prices, the number of allowances allocated in 2014 was reduced by 400 million allowances, and

for 2015, and 2016 the number of allowances allocated decreased by 300 million and 200 million respectively (“Market Stability Reserve,” n.d.). These allowances were kept off the market until 2019-2020 (ibid.).

The price fluctuations of EU ETS allowances can be seen in Figure 1. As mentioned before, the allowance prices crash at the end of the first phase. This is temporarily solved by increased stringency measures (such as lowering the cap, etc.) at the beginning of the second phase. However, in the last quarter of the third phase, we see much bigger price hikes. This can be explained by the increased stringency (through the lowering of the cap and centralization of the ETS), but also with introduction of the measures such as backloading and MSR (Richstein, Chappin, de Vries, 2015, p. 14-17). However, trying to ensure these lines of causality would require a study of its own.

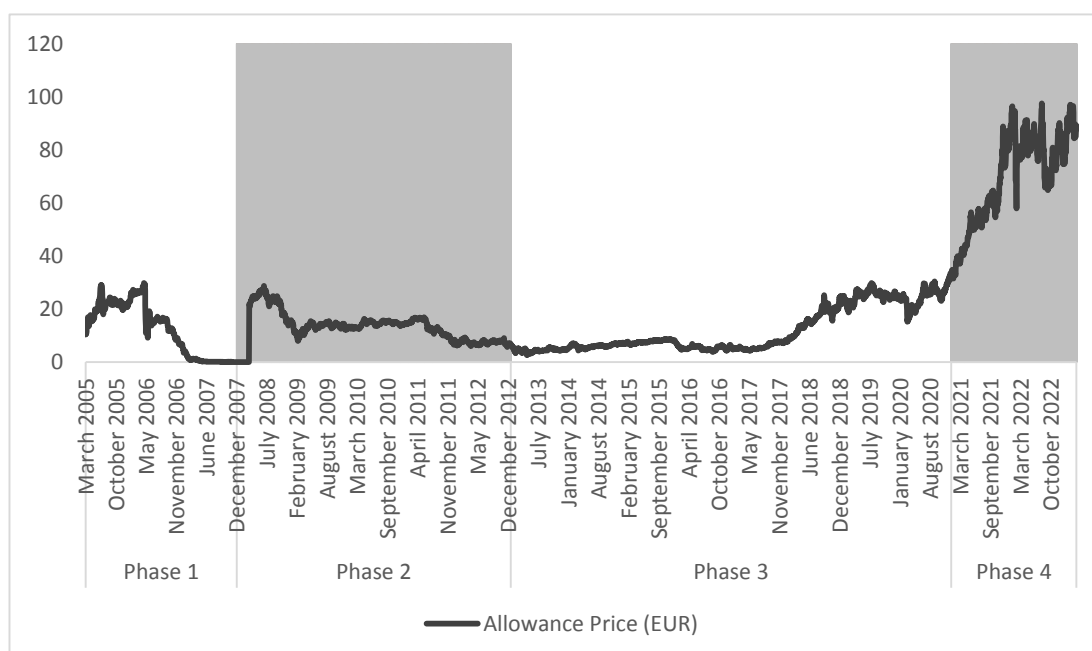


Figure 1. Allowance prices (EUR) in EU ETS
Source: International Carbon Action Partnership. (2023). Retrieved from <https://icapcarbonaction.com/en/ets-prices>

5.9 Carbon Border Adjustment Mechanism (CBAM)

As mentioned in the allowance allocation section, carbon leakage is an important issue that the EU ETS design tries to prevent. If European companies relocate to countries with laxer emission mitigation regulations, or in case EU countries start to import more carbon-intensive products outside the EU, the EU ETS would have less environmental integrity, and European businesses can suffer from the whole process. To protect EU ETS from this loss of environmental integrity and to protect European businesses from unfair competition, in the scope of the European Green Deal, the EU has accepted new mechanisms called the Carbon Border Adjustment Mechanism (CBAM) (European Commission, 2021b). CBAM will become operational by 1 October 2023 (European Commission, 2021b). At first, it will only include certain carbon-intensive goods and industries, including cement, iron, steel, aluminum, fertilizers, electricity, and hydrogen (European Commission, 2021b). As the CBAM gets operational and grows in size, the importers in the scope should report GHG emissions embedded in imports (European Commission, 2021b). After CBAM gets into force the importers will be required to share reports on their imports, and the embedded GHG emissions and surrender CBAM certificates according to the level of their embedded GHG emissions (European Commission, 2021b). Since CBAM is not yet operational, it is not quite possible to see its effects on the functioning of the ETS, or international trade. It does show an increased ambition from the Commission and other EU institutions, while also increasing the centrality of the system, as CBAM will apply to all EU imports. However, more research can be done in the following years on the effects of CBAM.

5.10 Key points from EU ETS design choices

Going over the overall design choices of the EU ETS, we see many changes in all four phases. The first phase is mostly a learning phase, characterized by laxer rules, almost exclusive grandfathering, and excessive use of external carbon offset credits. In this phase, EU ETS is hardly a central system. Looking at the functioning of the EU Institutions and plenary debates, it is obvious that the Commission constitutes a source of ambition and a source of knowledge, and research. However, Member States could decide on their caps, how they would use flexibility mechanisms, what metrics would they use for benchmarking, and how they would monitor the emissions, etc. In the end, EU ETS turned into a system with excessive emissions allowances and a cap that is too high that it does not incentivize businesses to mitigate their emissions. Although the Commission was checking the NAPs, there were many problems with them. Many of the NAPs were delivered late, only 10 of the original 15 Member States delivered on time (Kolshus and Torvanger, 2005, p. 2). For example, Greece was so late in sending its NAP that the approval by Commission was done after EU ETS was launched (Kolshus and Torvanger, 2005, p. 2). Countries' allocations differed a lot from one another, making the EU ETS complex for Member States and businesses. The use of external carbon offsets was not in line with the Commission's plans, and the bottom-up emerged cap was too much for incentivizing businesses to abate their emissions. In phase 2 we see several changes to make the system more stringent and harmonious, as in the limits to the use of offsets, increased percentage of auctioning, and more restrictive guidance through the NAP preparation processes. These changes all increase the stringency of the system while making it slightly more harmonized. However, it is the third phase where the design has been changed drastically. With the shift to auctioning as the

default allocation method price sign could be seen more strongly through the system. However, in the third phase, we see a strong centralization in the EU ETS as well. Examples of this are central cap-setting, central allowance allocation that does not have different rules for different Member States, much stricter and harmonious rules for carbon offset credit use, harmonized MRV rules, etc. Although many of the changes made to the EU ETS aimed at price and market stability, the effect of overallocation was still seen in phase 3, through a high number of allowances in circulation (Eichhammer et al., 2018, p. 21). To fight this, MSR was added to the system design, which increased the centrality of the system even more. Since it acts automatically it gives no actor additional agency through the process. Lastly, in the fourth phase, we see two additional changes, the exclusion of external offset credits from the system and the addition of CBAM to the EU ETS design. Overall design choices in all four phases can be seen in Table 2.

Table 2. Design Key Points of the EU ETS

	Phase 1 (2005-2007)	Phase 2 (2008-2012)	Phase 3 (2013-2020)	Phase 4 (2021-2030)
GHGs Covered	Carbon dioxide	GHGs covered in phase 1 and Nitrous oxides	GHGs covered in phase 2 and Perfluorocarbons	Same as phase 3
Cap Setting	Bottom-up cap setting through NAPs	Bottom-up cap setting through NAPs	Top-down cap setting	Top-down cap setting
Allocation Methods	Member States can choose the specifics. A maximum of 5% of the allowances can be auctioned.	Member States can choose the specifics. A maximum of 10% of the allowances can be auctioned.	Combination of auctioning and benchmarking (with centrally chosen benchmarks). Aviation and several sectors with high carbon leakage risk continued to receive free allowances.	Similar to phase 3. Changed carbon leakage rules for increased ambition. Auctions can get canceled to keep the allowance prices stable.
Flexibilities	Banking and borrowing are not allowed. Unrestricted use of CDM and JI credits.	Banking is allowed. Borrowing is not allowed. CDM and JI credits are allowed with limitations. Member States have to include the number of credits they plan to use in their NAPs.	Banking is allowed. Borrowing is not allowed. CDM and JI credits are allowed with limitations. Member States have to include the number of credits they plan to use in their NAPs.	Banking is allowed. Borrowing is not allowed. CDM and JI credits are not allowed.
Market Stability Mechanisms	-	-	Market Stability Reserve	Market Stability Reserve

Looking at the changes in the design we see two main trends. These are EU ETS becoming more stringent and more centralized. Increasing stringency can be seen in increases in auctioning in each phase, mechanisms -like MSR- to control the prices to have a strong price signal and decreasing the use of dubious abatement systems such as carbon offset credits. Increasing centralization and harmony can be seen in these design choices: increased guidance from the Commission for Member States, central cap setting, limitations for Member States to choose their own allowance allocation methods, limitations for Member States to choose their own benchmarks, limitations for Member States to choose their own MRV methodologies and central tools like MSR and CBAM that act the same in all Member States. Additionally, carbon offset credits that are external and hence cannot be overseen by the Commission are just excluded from the system, further eliminating a design choice that decreases Commission's control on the system.

Looking at the levels of emissions in the EU, we see a decreasing trend, over the years, as can be seen in figure 2 below. This shows us that the design choices that increase the stringency and centrality of the EU ETS, could indeed be effective in decreasing the emissions, thereby making the EU ETS a successful ETS. However, although a general decreasing trend is visible, it is worth noting that the emission levels have been lowered unexpectedly in 2009 and 2020, possibly because of the 2009 European Debt Crisis and the Covid-19 pandemic respectively, which shows us that the resilience and functioning of the market structure is not a case in isolation.

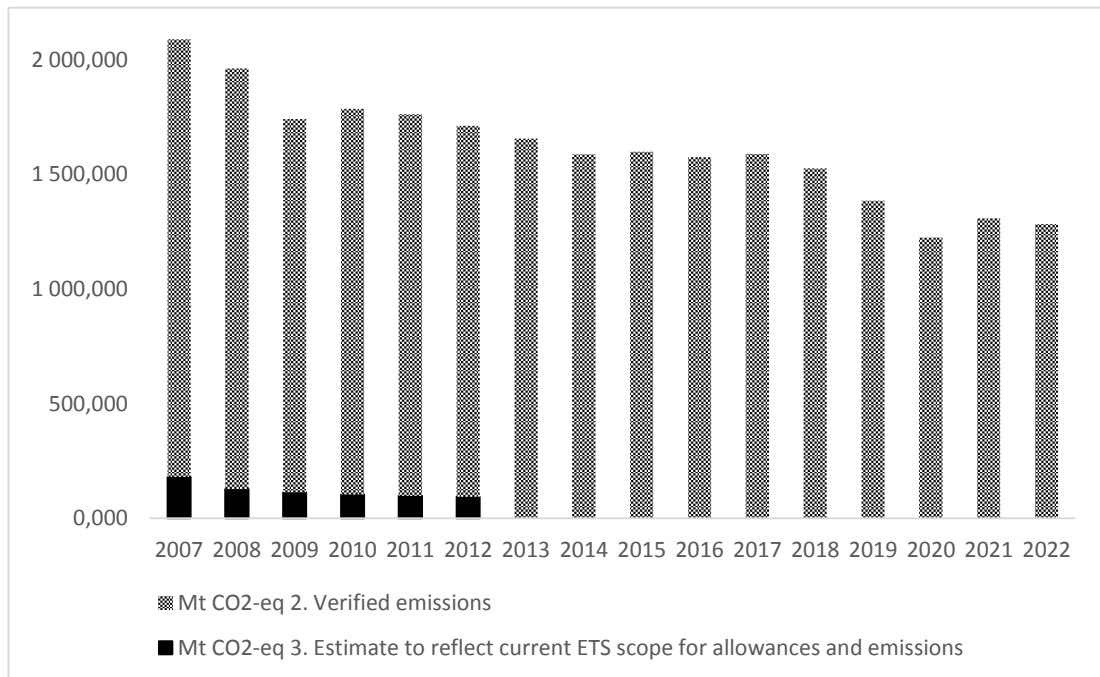


Figure 2. Emissions in the EU ETS countries by year
Source: European Environment Agency. (2023). *Emissions trading viewer*.
<https://www.eea.europa.eu/data-and-maps/dashboards/emissions-trading-viewer-1>

5.11 Stakeholders and their needs

Market structures are complicated. They feature a multitude of different actors and stakeholders that communicate with one another. Up until now, we have been through the EU's side of the EU ETS's initiation and evolution. However, as a market structure, EU ETS features much more actors than the EU Institutions and the Member States. Communications and transactions between these actors create and sustain the market. However, the variance and multitude of stakeholders might affect the functioning of the market. EU ETS is no different than any other market in these regards. It features quite different stakeholders. Each participating state has its own stakeholders as well. Stakeholders include Member State's policymakers, businesses and investors, researchers, NGOs, and the electorate.

Although all stakeholders have different functions and effects, they all play a role in either the design or implementation of the ETS, as well as getting affected by it. Member state policymakers have many functions both in EU Institutions, as well as at home. Through the Council, Member State policymakers can let their own and their constituents' voice be heard in the designing of the EU ETS. There they can vote on the system and different design choices that fit their countries' interests the best. They can also be more -or less- willing to allow the EU to limit Member States, aggregately switching the nature of the EU ETS along the supranationalism and intergovernmentalism continuum. However, Member States' policymakers have much more power in the system. EU directives are designed and put into force by the EU bodies, but the way they translate to Member State laws and how they are implemented in specific Member States is partially up to the Member States. Therefore, ambition in implementing the EU ETS in an environmentally and politically integral manner by the Member States can make a difference in the general functioning of the market.

Although EU ETS can affect the general population indirectly, they are not explicitly burdened with compliance requirements. Businesses and investors can be the most directly affected stakeholders of the EU ETS and any other emission trading systems. Firstly, they need to change their ways of production. This can entail decreasing production, switching to other less-emitting technologies, or investing in newer technologies. Since EU ETS directly burdens businesses with compliance requirements and goals to meet, businesses feel the effects of the EU ETS more than many of the stakeholders. However, because EU ETS puts businesses and industries at the top center of its design, they can also affect EU ETS, as well as its resilience. After all EU ETS, like all other emission trading systems, is a market. As a market, it

needs traders. Lack of trading due to a lack of trust or information about the system can decrease trading in the system. Businesses might avoid participating in trading allowances (secondary market) with one another after they get their allowances either through grandparenting or auctioning (primary market) (Baigunakova et al., 2017, p. 13). Reluctance of businesses to participate in the market might affect the price stability negatively and make the system dysfunctional. This is the case in Kazakhstan's ETS, where businesses and stakeholders had high reluctance rates in participating in the market, due to uncertainties in available information (Baigunakova et al., 2017, p. 13). Moreover, ETSs should also alter the behaviors of businesses and investors by incentivizing them to invest in new technologies, something that might be costly in the short term. Reluctance from businesses and investors to invest in newer technologies might make businesses unable to comply with the emission mitigation requirements, as the emission cap lowers over time. Businesses might be getting affected by the ETSs, but their trust and participation are indispensable for the resilience and environmental integrity of an ETS. Lastly, businesses can also influence the design of the ETS system. They can do this either by participating in the stakeholder surveys and research done by Commission or by lobbying. These further increase the prominence of businesses and investors in ETS.

Researchers and NGOs are other important stakeholders for an ETS. They are not as directly affected by an ETS as would the businesses, however, they are still important as they help the diffusion of information. Although researchers do not typically partake in the trading of carbon allowances, they still examine the market, its regulations, design, and implementation. ETS, after all, is a market that is born merely as a result of emission mitigation policies. It only lives by regulations, and includes trading of allowances, which are fabricated commodities. This means that

the ETS is a market that necessarily requires regulations and state control for its existence. Researchers examine design choices, policy background, stakeholders, and many different factors on ETS, all of which can be used to make the systems more effective and sustainable. Researchers' voices are not unheard, their voices are taken into consideration in research run by the European Commission for different stakeholders. However, European Commission's in-house researchers also make research that is used to guide EU discussions and decisions as well. Like researchers, NGOs can also improve the ETS. They can do this by making sure that the voices of different stakeholders can be heard. Although they might have fewer means to do it, NGOs can also engage in lobbying. Lastly, since they tend to have less focus on profits, several researchers and environmental NGOs might try to increase the ambition and ecological integrity of the ETS.

One of the other prominent stakeholders is the electorate. Although EU Commission includes ordinary EU citizens in their stakeholder surveys, their relationship with the ETS is much less direct, compared to other stakeholders. In the EU, citizens, unless they own or operate an entity that falls within the EU ETS system, are not burdened by any requirement or limitation. Moreover, the way the electorate can affect the design and implementation of the EU ETS is quite limited. EU citizens can elect some members of the EU Parliament and can vote for parties that are more environment-focused, such as the Green Party. However, their votes do not directly translate to the European Commission or the Council of the EU. The electorate can also affect the EU ETS decision and implementation processes through their votes in domestic elections. Electorates can vote for more environment-focused parties - such as the Green Party- which can affect how the Member States act in the Council of the EU. An example of this can be seen in Germany. While Germany

was, in the beginning, opposed to EU ETS, after the German parliamentary election resulted in increased seats for the Green Party, German MEPs and the German Council of the EU members became much more supportive of the EU ETS. This being said, individuals lack effective channels to lobby. Moreover, they are not as knowledgeable of the ETS as the policymakers as they are not briefed on the policy by the Commission.

Going through different stakeholders and examining how they affect and get affected by the EU ETS is important as it gives us insights into its functionality. Are any of the stakeholders affected in an unfair way, which can decrease the resilience or effectiveness of the system? Can any stakeholder act differently or can the design or the implementation of the ETS be changed to improve compliance or resilience through an improved sense of fairness, etc? As mentioned in the paragraphs above, stakeholders affect the design and implementation of the EU ETS as well. Especially European Commission allows direct channels of influence between different stakeholders and the EU bodies in designing and implementing the ETS. In addition to general research done by European Commission, the Commission also directly opens online consultation channels, with the help of which it prepares reports (Pacher, slide 21). The Commission also goes through stakeholder hearings with selected stakeholders (Pacher, slide 21). Therefore, knowing about stakeholders can help us also to see how it affected the behavior of the European Commission and later, other EU Institutions. This importance aside, it is also a quite difficult task. Because of the supranational nature of the EU, it operates in many states that have very different economic, political, social, geographic, cultural, and demographic qualities. Each of these has different stakeholders as mentioned above, which are in different conditions to begin with, just because of the Member State that they are

located in. Moreover, no group of stakeholders is completely homogenous in their needs either. For example, a steel producer in Greece and a glass producer in Sweden have much more differences than they have in common. This makes analyzing different stakeholders, a great challenge. This chapter will try to go through different stakeholders and point out these differences and use insights from other stakeholder analyses. However, focusing on a specific sector or a specific country can lead up to a very different picture, which makes this research area an important one that needs quite a lot of research dedicated to different countries and stakeholders.

Each stakeholder has different needs and focuses while evaluating the ETS. However, some important factors affect a majority of the stakeholders in all Member States. These are political acceptability, market confidence, cost-efficiency, and perceived fairness (Fujiwara et al., 2015, p. 3). Perceived fairness is an important aspect for many stakeholders but for businesses, the importance is especially high. The same emission mitigation goals for each industry may look like a fair deal, however, the industries differ from one another sharply. Mitigating emissions is not on the same level of difficulty for all sectors (Ellerman, 2008). Some sectors are more carbon-intensive and require more money and time than others (ibid.). For example, the steel industry is excessively carbon intensive as it requires the burning of metals for a long time in very high temperatures. Therefore, emitting less is harder for entities of the steel industry. This is also in line with the EU plenary debates where countries like Finland, where the steel industry is quite active, tend to argue for a less ambitious design or for higher amounts of flexibility. On top of the carbon intensity and the abatement costs of sectors, sectors are also unequal based on their relocation chances. Some sectors can relocate more easily than others (ibid.). For example, energy companies cannot easily relocate, but sectors that manufacture easy-

to-carry goods can more easily relocate to somewhere with laxer or no emission mitigation policies. This not only deceives the purpose of the ETS by failing to decrease emissions but also makes the system unfair for many sectors. Lastly, different sectors also differ in the ability to pass costs to their clients (Cludius et al., 2015, p. 167). For example, power companies in the EU -where electricity prices are not controlled by the state- can quite easily pass costs to their customers in the shape of higher electricity bills. However, trying to pass costs in a sector that manufactures goods, can lead customers to opt for imported options. This is not only bad for competition, but it also is a type of carbon leakage that can harm the environmental integrity of the ETS. For these reasons, certain energy-intensive industry stakeholders argue for greater flexibility through free allowance allocation by benchmarking, compensation for indirect carbon costs, etc. (Fujiwara et al., 2015, p. 14; European Commission, 2007, p. 11).

The harshness of the ETS in some sectors does not mostly prompt stakeholders to argue for canceling the ETS structure, possibly due to the stronger dislike of the alternatives, such as a carbon tax (Fujiwara et al., 2015, p. 13). However, they still ask for different design options, or to focus on different parts of the design when prompted to give their ideas and pain points. For example, according to the stakeholder analysis run within the scope of the POLIMP project, the power sector tends to be more accommodating for stringent allowance allocation methods due to their ability to transfer costs (Fujiwara et al., 2015, p. 7). Similarly, according to a report prepared by European Climate Change Program (ECCP), along with NGOs, the power sector stakeholders are advocating for harmonization of stringency as well as ensured scarcity of allowances in later phases (European Commission, 2007, p. 3). Also in the POLIMP project analysis, it is also seen that

carbon-intensive industries, like the steel industry, tend to place importance on stricter carbon leakage rules (Fujiwara et al., 2015, p. 8).

Effectiveness is cared for by many stakeholders as well. Researchers and NGOs tend to focus on the effectiveness of the EU ETS, but many industry stakeholders in different Member States care about effectiveness too (Fujiwara et al., 2015, p. 13,14; European Commission, 2007, p. 8). One of the factors that are given by stakeholders as harmful to effectiveness is the low carbon allowance prices. For example, according to the stakeholder research run within the scope of the POLIMP project, academic researchers in Austria and Hungary argue that the low carbon allowance prices cannot incentivize businesses to invest in greener technologies, which can jeopardize the emission mitigation goals overall (Fujiwara et al., 2015, p. 8). Moreover, the same research also points out that, although some steel producers in Austria express that the EU ETS does not fit their sector well, businesses, in general, expressed their will for increased sector coverage, as this would make the price of carbon the same for a wider group of people and help EU ETS stabilize its allowance prices (Fujiwara et al., 2015, p. 8). Overall, concerns about low or unstable carbon prices, and the overabundance of credits are shared by EU stakeholders as well as people from different sectors, such as glass and energy sectors (European Commission, 2007, p. 3, 6, 7, 11, 20). These sectors advocated design proposals like the MSR before it was added to the EU ETS design (Fujiwara et al., 2015, p. 17). Moreover, the research also points out that many stakeholders in the Netherlands, with a focus on businesses, ask for an unambiguous political framework and argue that policies that compete or overlap with the EU ETS should either be abolished or changed for higher effectiveness and higher predictability (Fujiwara et al., 2015, p. 7). Parallel to these findings the report prepared by

European Climate Change Program (ECCP), points out that business stakeholders prefer decentralization and depoliticization of the EU ETS cap-setting and allowance allocation procedures, while the report sees the NAP processes as an unnecessary step (European Commission, 2007, p. 2). This shows that business stakeholders can prefer supranational approaches in emissions policies if they believe these can increase stability.

As seen by different stakeholders in different countries, market confidence is an important area of focus. The low prices of the EU ETS are criticized by many. These criticisms are important because a lack of market confidence can keep investors and businesses from investing in low-carbon technologies or participating in secondary trading of allowances. To correct these mistakes, academic researchers may go as far as arguing for a tax instead of the ETS (Fujiwara et al., 2015, p. 8). This idea is quite unpopular among businesses, which show much greater acceptance for salvaging ETS through market mechanisms and regulations. What businesses want in the end is the ability to plan and uniform competitive conditions. For uniform competitive conditions, increased sectoral coverage is supported by many businesses. Because of this desire for plannability, business stakeholders are cited to prefer linear reductions on the emissions cap instead of a step-by-step approach (European Commission, 2019). On a similar line, the phase-by-phase approach is also cited as a potential source of concern due to the ability it gives to the EU to make big changes to the system on the go (European Commission, 2006).

Stakeholders do not think EU ETS is a perfect system. However, since businesses predominantly prefer market solutions, we see little to no will to abolish the system. Many stakeholders share concerns about fairness for different industries, carbon leakage, and extremely low carbon prices. EU, on the other hand, is aware of

these concerns due to its research but probably partially due to lobbying activities. We do see the reflection of this awareness in the EU's amendments to the ETS. To fight carbon leakage, the EU brought in carbon leakage protection rules, which it later recalibrated to further increase effectiveness. For the same reason, and to avoid making competition harder, the EU also brought in Carbon Border Adjustment Mechanism to the EU ETS. To fight very low allowance prices, the EU added Market Stability Reserve to the EU ETS policy. These show us that, the EU has been updating the system to cater to the wants of the business stakeholders, compliance of which is of the utmost importance for environmental integrity and the resilience of the system.

5.12 Effects of EU-internal policy diffusion mechanisms and enforcement tools

Adoption of EU ETS cannot be seen as a direct case of policy diffusion, or Europeanization, due to the top-down functioning of the enforcement system. However, the movement of centrally-made decisions to the Member States show parallels with policy diffusion, in which the nature of the policy or the existing policy framework of the Member State can affect the policy success and resilience in the Member States, therefore, policy diffusion literature provides us with a successful proxy for policy viability and resilience in the EU setting. As mentioned in the preceding chapters, policy diffusion has three main outcomes, which are convergence, divergence, and inertia. The overall EU-wide compliance rates to the EU ETS were 96.39%, 95.93%, and 97.15%, for the years 2019, 2020, and 2021 respectively (Marcu et al., 2022). Judging from the high compliance rates, and longevity of the system, we can deduce that the EU ETS was a case of convergence. The reason for convergence can be explained by diffusion mediating factors found in

the policy diffusion literature, as well as by looking at the mechanisms that the EU makes use to enforce Member States, as well as the mechanisms that are used by the Member States to enforce EU ETS at home.

Communications and the knowledge and research flow within the EU resemble soft diffusion mechanisms. However, the EU also has general policies for infringements of EU policies, and EU ETS also has mechanisms that can be used by Member States to enforce compliance. These can be classified as closer to hard diffusion mechanisms. This interplay between soft and hard diffusion mechanisms might have helped EU ETS to have its current compliance rates. This section will try to go through mediating factors in the policy diffusion literature and see if they apply to the EU ETS. It will also go through EU infringement policies and EU ETS policy design to see how compliance was achieved.

The economic vulnerability of the target state might make a state more dependent on outside support, and thereby increase the chance of diffusion. However, the EU is a mixed group of countries with different economic situations, therefore using economic vulnerability as a reason for explaining high rates of compliance does not make sense. Moreover, accepting this mediating factor as a reason for the successful convergence of the EU ETS would necessitate us to expect higher compliance rates from countries with more vulnerable economies. However, according to 2021 compliance data, this is not the case, many countries with strong economies have reached as high as 100% rates of compliance including the Netherlands, Malta, and Belgium (Marcu et al., 2022). However, the lowest complying countries were the ones with relatively weaker economies, such as Bulgaria, Greece, Portugal, and Romania, with Bulgaria having the lowest compliance with 82.57% (Marcu et al., 2022). For the political-institutional capacity

of the target state, we can also find no supporting evidence from the EU ETS case. It can be argued that the EU itself has a strong political-institutional capacity, or EU states generally have a strong political-institutional capacity. However, this factor still does not seem to apply to the EU ETS. States with strong political-institutional capacities, such as Germany, the United Kingdom, and France needed to go through multiple infringement procedures due to a lack of compliance and communication (European Court of Auditors, 2015, p. 43).

For political legacy and policy preferences, we can see more data throughout EU Member States. Although a market solution like the EU ETS was not attested for other pollutants or policy areas, EU Member states had many policies for emission mitigation, way before the EU ETS. These policies include standards for energy efficiency of buildings and emissions from vehicles, renewable energy subsidies, carbon taxes, and voluntary agreements by Member States. For example, Denmark has been accepting new energy efficiency policies since the mid-1970s, most of which came into power before 2000 (Togeby, 2009, p. 1,2). Similarly, many countries have implemented policies directed to incentivize the generation of renewable energy, through subsidies and other incentives before 2005. An example can be seen in Spain, where beginning from 1998 to 2008 several policies were implemented to incentivize electricity generation from renewable sources (Coronas et al., 2022, p. 1). On a similar line, in 1993 France included new emission standards for cars, just like many other European countries at that time (OECD Working Party on Environmental Performance, 2000, p. 81-82). Lastly, in the Netherlands since 1989, numerous voluntary agreements have been made, in which specific interest groups and sectors set voluntary emission mitigation goals (Bressers and Bruijn, 2005, p. 261). The examples vary. None of which are quite like the EU ETS.

However, they show us that emission mitigation has been a part of the policy framework in European countries long before the EU ETS. Just like the EU ETS, many of the European emission mitigation policies, like the carbon tax in Finland, are political trailblazers that show us European countries' ambition in emission mitigation policies. These show us that both existing policy legacy and policy preferences might have indeed helped the successful implementation of the EU ETS.

According to policy diffusion literature, the viability and resilience of the diffusing policy can also increase by increased discourse between source and target countries. In the EU setting, the source and targets are hard to delineate, however, the EU provides its Member States with many channels to share their discourses. These include discussions within specific EU bodies (e.g. the European Commission, European Parliament, etc.). It also has many channels through which different bodies of the EU as well as the Member States and different stakeholders can communicate with one another. These include trilogues, plenary sessions, and the publishing of research and reports. Therefore, the EU does increase the communication and discourse between its institutions and the Member States, as well as among the Member States themselves.

These factors show us how the structure and political framework can help the EU to increase the viability of the policies in its Member States. However, what are the specific methods by which the EU enforces its directives on the Member States? The enforcement process can be said to work differently for Member States and candidate states. EU can impose its directives and regulations as a prerequisite for accession to the EU (Slobodchikoff, 2010). According to a study by Slobodchikoff, this method of enforcement is much more effective than enforcement methods for states that are already members of the EU (Slobodchikoff, 2010). Slobodchikoff also

argues that the chance of successful implementation of the policies increases, if the state goes through a longer accession process (Slobodchikoff, 2010). Although these are important points that can play a role in implementation in several Member States, it is unlikely that any policy enforcement that comes from the accession process can be used to account for EU-wide policy resilience. Therefore, we will go through general EU infringement processes for generic response in case of non-compliance, and then go through enforcement mechanisms that are specific to the EU ETS.

The EU Member States are obliged by transposing and applying EU laws correctly (European Commission, 2022). Transposition refers to the process in which Member States translate the EU directives into domestic laws (“Transposition”, n.d.). EU directives cannot be directly applied by the Member States, they are expected to incorporate the EU decisions into their national laws and policies in a way both the Member States and the Commission see fit (European Commission, 2022; “Transposition”, n.d.). The inability to transpose the EU decisions and apply the relevant laws can lead to infringement cases.

Along with its other tasks, such as conducting research and proposing new legislation, European Commission is the body that checks compliance as well. In cases of possible non-compliance, the infringement process can be automatically triggered, it can also be started with European Commission’s agency, or after being prompted by other Member States on a possible case of non-compliance (European Commission, 2022). The infringement process typically begins with four main reasons. The first is the “failure to notify” where a Member State fails to notify the European Commission about its measures and transposition processes on time (ibid.). The second reason is “non-conformity”, which means that the European Commission evaluates the Member State laws as non-compliant with the EU directives (ibid.).

The third is “incorrect application” in which a Member State does not apply an EU law or applies it incorrectly (ibid.). Lastly, infringement processes can also begin when Commission finds out that a Member State's laws are not in compliance with EU treaties, regulations, or decisions (ibid.).

The infringement process is quite straightforward. It starts with European Commission sending a letter of formal notice to the Member State (ibid.). This letter asks the Member State to provide the European Commission with more knowledge on the case in a timeframe that is approximately 2 months (ibid.). If the infringement is not resolved at this stage, European Commission can then send a reasoned opinion, which invites the Member State to provide the European Commission with information about how the specific non-compliance has been handled (ibid.). If these two stages did not end in compliance, the EU Commission refer the infringement case to the Court of Justice of the European Union (ibid.). If the Court decides that the Member State was not complying with the EU decisions, it can issue a ruling that forces the Member State to take action for guaranteeing compliance (ibid.). In case of further non-compliance, the European Commission can refer the case to the Court again, which can face the non-complying Member State with sanctions and fines (ibid.). However, 90% of the infringement cases resolve before the case gets referred to the Court (ibid.). Shortly, infringement cases are dealt with communication, and if they do not work fines are used. Harder enforcement methods, like revoking membership, are never used as they can set harmful precedence (Slobodchikoff, 2010).

Along with the prerequisites for candidate states, infringement procedures also ensure compliance by the Member States. Unlike one-state ETSs, where the state is not forced by outer entities, we see that EU Member States risk facing

penalties, in case of non-compliance. Moreover, as mentioned above, the EU States can call out other members on infringement which can further drive up ambition and possibly increase policy resilience. Moreover, Member States can even call out each other in cases of inconsistencies or lack of ambition, in the absence of clear breaches of EU decisions. Caroline Lucas's (from the European Parliament) speech that criticizes the UK for low environmental ambition can be given as an example of this effect:

He said that it would be a priority for the British presidency. Yet, Mr. Blair, we have had just half a sentence on climate change from you in your speech here today. Moreover, yours is a government under which greenhouse gas emissions have actually risen. Yours is a government which has attempted to increase the volume of emissions allowable to British industry under the EU emissions trading scheme. That is hardly a very good start for someone who is pledging to show international leadership on the issue of climate change. (Lucas, 2005)

Examples such as such show that even when there is no specific case of infringement, Member State representatives in the EU can point out cases of low ambition or inconsistency, increasing the climate ambitions of EU discourses.

5.13 Enforcement

The infringement processes are run to ensure compliance by the Member States. However, EU ETS affects many different installations too. For a functioning ETS, the compliance of the installations should be enforced as well. Although, the European Commission ensures compliance by the Member States, ensuring compliance nationally is the responsibility of each Member State. This graded monitoring system, in which Commission checks on the Member States, while the Member States check on the entities makes non-compliance harder. A non-compliant entity is checked through multiple eyes, both by the Member States and indirectly by

the European Commission using the reports and statistics shared by each Member State (Peeters, 2013, p. 184). Therefore, for noncompliance to be unpunished the number of actors that need to be escaped gets increased due to the multilevel enforcement structure.

National enforcement methods for the EU ETS might change from one country to the other, as Member States are given some freedom on penalties for noncompliance. There are, however, some enforcement methods imposed by the European Commission upon the Member States. These include naming and shaming, as well as fines (Peeters, 2013, p. 180-182). EU Member States can share the names of non-complying companies with the public, in a way to ensure compliance with using corporations' will to have a good reputation. Another penalty imposed on the installations is a fine. For the first phase, it was 40€ for each ton of CO₂ that is emitted without surrendering the necessary allowances (Peeters, 2013, p. 180-182). Later it was updated to a 100€ fine for each ton of CO₂ that is emitted without surrendering the necessary allowances (Peeters, 2013, p. 180-182). Moreover, the installations still need to surrender the allowances, even after they pay the fine (Peeters, 2013, p. 182). This aims to ensure environmental integrity by making sure that the excess emissions cannot be used by other installations later. The Member States can make changes in how they implement naming and shaming, and they can add additional penalties for non-compliance, but the 100€ fine is added to the directive with a set price and it works in an automated manner, therefore, it cannot be modified by the Member States (Peeters, 2013, p. 181).

Penalties and compliance seem to have a direct relation. Non-compliance is penalized making non-compliance a more expensive option than buying necessary allowances or investing in greener technologies (Peeters, 2013, p. 171). This can

incentivize compliance, thereby making EU ETS more environmentally integral, as well as making the carbon market more trustworthy (Peeters, 2013, p. 169).

Increased trust in the market can increase resilience as a lack of participation in the emission allowance trading can indeed make the system less stable, such as in the case of Kazakhstan. However, EU ETS is quite centralized in how the penalties are decided. As seen above, the Member States have very little to say on penalties. This is good for increased environmental integrity as well as increased market stability and trust in the market. If this was not the case, the Member States might have opted for laxer penalties, as this would increase their chances of being more competitive, making the enforcement design closer to a normal form game. This would decrease the environmental integrity, as in some Member States, the costs of non-compliance would have been lower. However, different penalties and compliance strategies in different Member States can decrease the trust and perception of fairness in the market structure, making it hard for businesses to make plans, make investments, and trade carbon allowances with other installations.

CHAPTER 6

DISCUSSION

This thesis tested two main hypotheses. The first was that the level of supranationalism of the EU makes lagging and non-cooperation less meaningful and harder and thereby improves the viability and resilience of EU policies. Secondly, it hypothesized that the EU ETS design choices -which were taken and implemented with the help of EU institutional structure and supranationalism- made Member State-internal stakeholders less likely to lag or be non-compliant.

In order to test these hypotheses this thesis should go through two pieces of argumentation. First, it needs to show that the EU is -at least in its emissions mitigation policies- providing us with supranational governance rather than an intergovernmental one. Secondly, using rational choice institutionalism -including game theory- and discursive institutionalism we should demonstrate that the increased level of supranationalism has contributed to increased viability and resilience of EU ETS. We should also prove that the policy design updated by the EU in several iterations should be disincentivizing both the Member States and other stakeholders to lag.

As we saw in the literature, there is a debate between the intergovernmental view and supranational view to see whether the EU governance is closer to an aggregation of sovereign Member States, or whether there are factors that make the EU institutions limit the Member State sovereignty in favor of EU interests. This thesis argues the second to be true, especially in the case of emission mitigation policies. One of the first organizational features that make the EU more supranational is the qualified majority voting (Wettestad, 2012, p. 70). Although the EU needs

unanimous voting in some policy areas, like taxes, many other policy areas, like emission mitigation, allow qualified majority voting. In the case of unanimous voting, an initiative becomes a directive only if all the Member States vote for it. This means that no specific Member State can be forced into accepting a law, therefore, their sovereignty is not limited. In the case of qualified majority voting, an initiative can pass if majority of the Member States vote for it. When an initiative passes with qualified majority voting, it means that the Member States are mostly happy with the provided choice of policy, but not necessarily all the Member States. This forces Member States that voted against a policy change to still adopt it, limiting their sovereignty. Member States can still object to an EU law via CJEU through actions for annulment (Publications Office, 2010, p. 5; Court of Justice of the European Union (CJEU), n.d.). Even though Member States can try to annul the EU decisions via CJEU, CJEU is an institution that makes the EU more supranational. Firstly, with infringement cases, it makes sure that the EU laws are implemented correctly in all Member States, which constitutes an outside checking mechanism that enforces the Member States to comply with the EU law even if they don't agree with it. Moreover, with its supremacy principle, CJEU can enforce EU laws that are against the Member State laws even in cases where the EU law at hand is against the constitution of the specific Member State (Kolcak, 2014, p. 1). With these operational features, CJEU makes sure that the EU law is enforced, even sometimes against the wills and laws of the Member States, providing the EU with supranational qualities.

CJEU is not the only EU institution that prompts this thesis to accept the EU as a supranational form of governance. The Commission is also another institution that drives up the supranationality of the EU. Firstly, the Commission is built with

supranationality in mind. One example of this is the fact that the commissioners swear an oath for focusing on the EU interests rather than their home countries' interests (European Commission, 2010). This mindset can be seen in the organizational structures of the Commission as well. For example, the President of the Commission is a powerful figure that functions actively in several tasks, such as communicating with the other institutions of the EU, which provides the Commission with a centralized mouthpiece that it uses in its communications (McNaughton, 2018, p. 216). This is a factor that contributes to increased supranationalism as it decreases the chance of commissioners with possible different views directly affecting the discussions in other EU institutions.

The Commission has three main functions that make it more supranational. Firstly, it sets the agenda for discussions in other EU institutions by providing them with initiative, communications, and research. These pieces of research are actively used in plenary debates and trilogues. These show an increased supranationalism because it shows us that the Parliament and the Council which are designed to be more intergovernmental use an agenda that is both created and substantiated by Commission through information and communication. Secondly, these communications and information directly guide the discussions in EU-internal debates as seen in the plenary debates. This shows us that the Commission can directly guide the EU-internal discussions not only by setting the agenda but by also providing actors with information. Lastly, and most importantly the Commission actively checks and coordinates the implementation of many EU laws such as the EU ETS. In the first two phases, it controlled the specifics of implementation by examining the NAPs sent by the Member States. However, in the later stages, the

system is mostly centralized where Commission can decide on many specifics of the EU ETS, curtailing the sovereignty of Member States.

Lastly, the Council, which is not commonly cited for its supranational features, has two features that increase its level of supranationalism. Firstly, as mentioned in the literature the Council rarely vetoes the initiatives proposed by the Commission (Wettestad, 2012, p. 70). This allows the decisions and the will of the supranational-minded Commission to come into action with little hindrance. Moreover, the internal organization of the Council also makes it an institution more supranational than many accounts for. Since the Council has Ministers from Member States that focus on many policy issues with a focus on their own country, it is mostly cited as an intergovernmental body. However, it is seen that these groups tend to cooperate in certain policy choices that are not wholly in line with their preferences, in order to expect reciprocity in other policy areas (Lempp and Altenschmidt, 2008, p. 520). Similarly, it is seen that representatives tend to accept policy choices if it has no visible positive or negative impact on their country (Lempp and Altenschmidt. 2008, p. 522-523). For these reasons, it is clear that the Council operates with a socialization that in some cases put the European interests on top of the Member State interests.

For all the reasons mentioned in the above paragraphs, this thesis argues that the EU is predominantly a supranational polity. However, how does this increased level of supranationalism and centralization affect the policy viability and resilience of the EU ETS? Rational choice institutionalism and discursive institutionalism can provide us with insights into this link.

According to rational choice institutionalism and game theory, Member States try to maximize their interests. Therefore, if they are better off lagging or

defecting, they are likely to do that. With no intervention, many emission mitigation policies resemble a Nash Equilibrium, which makes emitting or mitigating sub-optimally, desirable options for the Member States. In a normal form non-cooperative game -in which the actors don't know about the actions of the others- freeriding becomes much more advantageous. These being said, interventions and certain kinds of game structures can make non-compliance harder or less advantageous. For example, cooperative games and repeated game structures enjoy bigger chances of compliance (Wood, 2011, p. 161-164). These games can increase the chances of compliance through repercussions for non-compliance and providing the actors with information on what the other actors might do. We see these effects in the EU ETS as well. In the EU ETS case, thanks to the qualified majority voting, the Member States, had to join the EU ETS even if they did not want it to. After this point, CJEU provided the Member States with threats of repercussion, namely the infringement cases, which provided the Member States with more reasons for compliance. Moreover, the EU -specifically the Commission- provided the Member States with an ample amount of information on what the other actors might do, making EU ETS even farther away from being a normal form non-cooperative game. The Commission provided the Member States with information through its reports, and communications, as well as by publishing every Member States' NAPs which includes many details on how the Member State will implement the EU ETS.

Another important part of rational choice institutionalism is its focus on veto points' effects on policy. Tsebelis argues that policy stability (inability to change policies) is directly proportional to the number of veto points, the difference in political views of the veto points, and cohesion within each veto point (Tsebelis, 1995, p. 293). Who are the veto players in the EU? In an intergovernmental system,

we would include all Member States as veto players, as well as the Commission, Parliament, and the Council, as these can all affect the outcome of a policymaking process. However, we see a different picture in the EU. In policy areas where unanimous voting is necessary like the tax policies votes from single Member States can affect the result of the policymaking process. However, in many non-tax-related policy areas such as emission mitigation and climate change mitigation, qualified majority voting is used. In this voting mechanism, single Member States lose their veto privileges, and constitute a single veto point as the totality of the Member States, giving us a system with approximately four veto points. With the strong pro-ETS discourse from the Commission, and Council's and CJEU's inclination to focus on the EU interests, we end up with a system where 3 of these veto players (except the Member States) are quite likely to cooperate in many policy areas. This shows a decreased level of political differences among the existing veto players which, according to Tsebelis, provides the EU with less political stability, and hence a better chance of viability for the ETS.

Due to the decreased number of veto points, the specific Member States could affect the final policy design only in a limited way. However, for the first two phases of the system, they had a lot of power in deciding on the specifics of implementation. The Member States could still overallocate allowances, overuse carbon offset credits and thereby refer to freeriding as much as possible, creating quasi-veto points in the implementation side of the EU ETS. However, with the centralization of the system, Member States lost their privileges in deciding on the specifics of the implementation. This disabled them to change the implementation for their interests and freeride.

According to discursive institutionalism, in compound polities like the US a discourse needs to diffuse to different branches of the government and compete with other discourses in order to be effective (Hope, 2012, p. 415). This could suggest that the EU would have a similar outcome, which was not the case. The Commission is a prolific information source for all of the EU discussions, through its research, consultation, and communications. Seeing that these pieces of information are commonly used in EU-internal debates shows us that these pieces of information and communications have been put to use as well. The strong use of Commission information and communications provided a single and strong discourse for the EU institutions and the Member States. This discourse had a clear cognitive function that proved the necessity of an ETS.

The supranational nature of the EU has been an enabler for the successful diffusion of the Commission's ambitious pro-ETS discourse. As mentioned before, Parliament and the Council have strong European esprit de corps that allow them to focus on the European interests, and also be welcoming to information and initiatives from the Commission. Unlike the US or other bicameral/federal systems, strong antagonisms don't seem to be blocking the Commission's discourse, at least in the climate change mitigation policies which can be seen in the plenary debates.

This thesis also hypothesized that the EU ETS design choices -which were taken and implemented with the help of EU institutional structure and supranationalism- made Member State-internal stakeholders less likely to lag or be non-compliant. Looking at the EU ETS's viability and resilience we can see much more than just a decrease in the number of veto points. EU institutions also provide a communication channel and learning experience for many stakeholders, with which it was able to update the policy design of the EU ETS. Starting the system with a

suboptimal design for 3 years before the Kyoto implementation phase allowed the EU to learn from the mistakes of the first phase and make necessary changes through a policy cycle approach. Moreover, through debates and stakeholder research, it was obvious that many stakeholders wanted stability and harmony within the system, and possibly a reserve to stabilize the prices. We can see that the Commission heard these voices and used the policy cycle approach to make the policy fit the wills of the stakeholders. Therefore, even though the Commission makes the design and implementation of the system increasingly top-down, decreasing the agency of the Member States, it has also built channels for the bottom-up flow of information between different stakeholders and the Commission through its research and stakeholder hearings. By building information channels directly between stakeholders and the Commission, the EU was able to make many of the changes asked by the stakeholders, such as harmonization of the system, the formation of a market stability reserve, etc. The overall functioning of the Commission and other EU institutions in making the EU ETS more resilient can be seen in Figure 3.

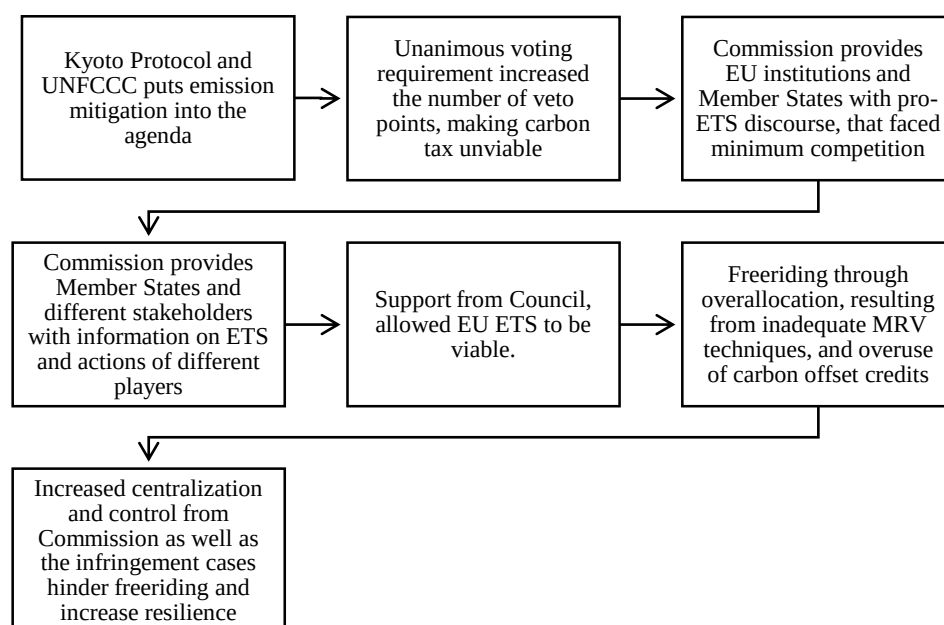


Figure 3. Overview of EU's functioning in making EU ETS more resilient

What has led other systems to fail? In the Kazakh case, we see several similarities with the EU ETS. Kazakh ETS could be put into power quite quickly, thanks to the centrality of the governance and the ability to use decrees (Wettestad, 2018, p. 169). The amendment to Kazakhstan's Environmental Code, which sets the beginning of the pilot phase to 1 January 2013 could not be adopted until December 2011, leaving just about a year of preparation for the pilot phase (Wettestad, 2018, p. 171). The pilot phase was set to last only a year, meaning that the Kazakh officials hoped to create a fully functioning market structure in about 2 years (Wettestad, 2018, p. 167,171). These times are considerably less than the EU ETS, giving Kazakhstan much less time to learn by doing. As Kazakhstan has a much less complicated organizational structure as it is a unitary state, it probably required less learning time than the EU ETS. Moreover, Kazakhstan had EU ETS to learn from. However, the literature points out that the legal definitions and plans for the ETS were not properly prepared, creating confusion among stakeholders (Wettestad, 2018, p. 167, 171). This led to two negative results. Firstly, low participation rate in allowance trading, which can result in unexpected price fluctuations. Moreover, it also means that the market is not doing what it is supposed to be doing, which is to let sectors that can abate their emissions help sectors that cannot, while also earning money from this. This turns the ETS into a carbon tax with an emission cap. The second negative result was direct opposition from the industry stakeholders. All of these led the Kazakh ETS to be suspended in 2016. These show us two results. Even though when a country has a strong central authority, the immunity from lobbying effects can be less effective than a supranational system, in which the local lobbying needs to trickle down from each Member State to the supranational administration. Secondly, good preparation and learning are important for the viability and resilience

of the system. Lastly, we also see that inability to communicate with different stakeholders the features of an ETS in a detailed and timely manner can make the actors less likely to cooperate, thereby decreasing the resilience of the system.

Another ETS that was unviable is the Australian ETS, which was abolished even before being operational. The first ETS plan in Australia was proposed with the name Carbon Pollution Reduction Scheme (CPRS) in 2009 (Wettestad, 2018, p. 124). In 2011 Labor government introduced a new system called the Carbon Pricing Mechanism (CPM) to replace CPRM, in 2014 CPM was repealed (Wettestad, 2018, p. 124). There were many reasons for the failure of the CPRM and CPM. Firstly, Australia is a trade-exposed economy with a reliance on coal, natural gas, and other emission-rich elements for energy generation (Wettestad, 2018, p. 124). This led to a strong politicization of the issue where different political parties have quite different opinions (Wettestad, 2018, p. 124). Strong lobbying against the ETS, as well as negative media coverage, was seen (Wettestad, 2018, p. 124,137). Moreover, the fruitlessness of the UN Climate Conference in Copenhagen gave different stakeholders the idea that Australia might have been too ambitious while other major emitters are not taking any action (Wettestad, 2018, p. 127; Christoff, 2013). Lastly, an important political change happened that sealed the deal for the CPRM. Tony Abbott and his coalition replaced Turnbull's government, which was much more supportive of the CPRM (Wettestad, 2018, p. 127; Behm, 2015). Later, Abbott's government repealed CPM as well, with the support of the Senate (Wettestad, 2018, p. 128, Rootes, 2014).

Looking at Australia's case, we see many differences from the EU's case. Firstly, in the EU the discourse was mostly about being the climate change mitigation leader and reducing emissions, however, in Australia, there are many

different competing discourses. Different political parties have different takes on emission mitigation, also coupling with the active contribution of lobbyists and media. With the help of increased veto points also due to the senate, the competing views, and discourses on ETS were able to get the ETS repealed in its very early stages. Moreover, active anxiety over not being able to compete with other major emitters was also seen as a contributing factor. This case further verifies our findings that the increased veto points and politicization through competing discourses can impede the initiation and resilience of the ETSs.

Similarly in Ontario, there has been a working ETS between 2015 and 2018 (Raymond, 2020, p. 1127). Again, we see two very different views on the ETS from two political wings. The Liberal Party focused mostly on the environmental integrity of the ETS and improving its functioning (Raymond, 2020). This is indeed an ambitious discourse. However, the Conservative Party had an increased focus on consumer prices and the possible burdens that can be faced by the population (Raymond, 2020). Moreover, the Liberal Party's and the policy designers' focus on discussing the goals of the system, rather than how it works helped the opponents to tag the system as a carbon tax (Raymond, 2020). In 2018 the Conservatives won the majority of the seats in the Ontario Parliament (Raymond, 2020, p. 1135). After this, the ETS was repealed (Raymond, 2020, p. 1135).

EU is a multinational body with many different actors, such as EU institutions, Member States, and the Member State internal actors, such as the businesses. We would expect a high number of actors to be a hindrance to viability and resilience of environmental policies like the ETS, as a higher number of actors provide us with more veto players and more agents that can non-comply. However, this has not been the case in the EU. We see a viable and resilient ETS in the EU,

despite the high number of actors. There are many reasons for this. Firstly, due to qualitative majority voting, the veto capabilities of individual Member States are limited. On a similar line, we see a socialization within and between the EU institutions, which make them prioritize the EU interests instead of the interests of Member States. Moreover, unlike the US, in the EU, we see a very strong pro-ETS discourse that has not been challenged by other discourses, making the actors more welcoming to the ETS. Similarly, the Commission acts as a source of information, by providing Member States and the stakeholders within with information on ETS, environmental goals, and what the other Member States and stakeholders are doing. This increased knowledge on ETS and how the other actors are playing, made compliance a better choice for many actors. Moreover, with the centralization of the system, most of the implementational details are left to the Commission which gave the Member States and the stakeholders within, less chance to freeride. Lastly the enforcement of the EU policies like the ETS by the CJEU makes non-compliance costlier for the Member States and stakeholders, thereby increases the compliance.

CHAPTER 7

CONCLUSION

In this research project, we have looked at the case of the EU ETS, to see the reasons for its viability and resilience in a multinational setting. We have found that many qualities of the EU institutions made the EU a predominantly supranational body. We were able to see that through this level of supranationalism, the number of veto points that could hinder the initiation of an ETS were decreased. Moreover, with the increased supranationalism of the EU's structure, the pro-ETS discourse of the Commission and its ambition could pass on to other EU institutions and finally pass on to the policy outcomes without much hindrance from competing discourses. Lastly, with direct stakeholder-to-Commission communication and information channels, the system design could be tailored to stakeholder needs, which further contributed to the resilience of the system. Through these findings, we were able to prove that the increased supranationalism can improve environmental policy viability and stringency.

By completing this thesis, we have made several additions to the literature. Firstly, we have looked at the ETS with all its relatively new features such as CBAM and MSR that are introduced later in its development. Having a full picture of the latest policy design choices, coupled with our overview of stakeholder reports, provided us with links to evolving of the EU ETS and stakeholder preferences. Much of the existing institutionalist literature could not make such linkages due to having witnessed only the first phases of the EU ETS.

This research had a full picture of the EU ETS and was able to show the effects of supranationalism -and the resulting centralization- on the viability and

resilience of the EU. Moreover, to point out some reasons for the vulnerability of an ETS, we have shown examples from several countries. However, a comparative study of these cases in greater detail can provide the literature with more valuable information. With further research on these cases, we can see if there are bigger factors at play than the level of supranationalism.

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