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The role of two advocacy coalitions in developing emission standards for heavy-duty vehicles in the EU

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Abstract

In recent years, the environment has become a central theme in the EU. Policies for protecting the environment have been adopted, while, at the same time, the EU has developed into a multi-layered political system subject to lobbying and maintaining of interests in the policy-making process.

The present thesis explores some consequences of this new political situation. Forming a case study of the CO₂ emission regulations introduced for heavy-duty vehicles in 2019, the study looks specifically at the development of this reform through an advocacy coalition framework, where the automotive industry is represented by *The European Automobile Manufacturer's Association* and the environmental concerns by *The European Federation of Transport and Environment*. As such, the study takes a qualitative approach, investigating the roles of the two coalitions in the formulation of the new emissions policy. It also looks at what beliefs seem to have conditioned this process, and whether the coalitions involved exhibit instances of policy-oriented learning and change of such beliefs.

The results show that the introduction of a CO₂ standard for heavy-duty vehicles was subject to considerable negotiation and conflict. While automakers worried about increasing competitiveness, the environmental advocacy expressed frustration over the change going too slow. The disclosure of the 'dieselgate' scandal finally seems to have turned the tide in favour of the environmental position. Portrayed as a 'villain', the automotive industry eventually accepted the regulations, while declaring that the industry had taken a serious blow. Yet, basic beliefs still turned out to be largely resistant to change.

Key words: heavy-duty vehicles, emission standards, the automotive industry, environmental concerns, advocacy coalitions, governance, beliefs, policy-oriented learning

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1 Introduction

During the last few decades, the world has undergone an extensive globalization process. The world economy is now woven together through international production chains as well as worldwide markets. At the same time, environmental concerns have been growing to become one of the most discussed subjects in today's society. A central theme in this context is how the production and consumption of commodities are linked to environmental impacts, most notably air pollution. A reoccurring 'villain' in this context is the CO₂ emission from road transports, a sector which has become an exponent of how our societies have evolved in the past hundred years or so. According to the United Nations Environment Programme (UNEP), the fleet of private vehicles is expected to triple by 2050, and by then, the emissions of CO₂ is likely to account for about a third of the total of such emissions. At present, it is estimated that motorized vehicle transportations in the world accounts for about 23% of global CO₂ emissions (UN Environment Programme 2016).

The European Union (EU) is an active and well-recognized participant in the work for environmental protection. Since acknowledging the importance of the environment in its legal core in 1987, it has been a strong voice in discussions of environmental protection, contributing to a comprehensive list of regulations having been adopted in order to halt instances of detrimental development. Yet, interestingly enough, while many of these regulations target private cars and light-duty vehicles, there seem to be rather few regulatory requirements relating to heavy-duty vehicles (HDV), which is somewhat surprising, given the fact that this category of vehicles accounts for a large proportion of current emissions. To put it more specifically, representing only two percent of the motorized fleet, HDVs are estimated to account for as much as 22 percent of the total CO₂ emissions caused by road transportation (T&E 2020a).

In February 2019, the EU reached an agreement concerning emission standards for new HDVs, aiming to cut down CO₂ emissions by 15 percent 2025 and by 30 percent 2030. However, as such stipulation have not been seen as fully sufficient, the European Parliament have expressed their wish for even more ambitious goals in this context, as did the council of ministers. It should be noted, though, that this excludes Germany, the country perhaps most associated with the automotive industry, despite the fact that the Germans often are praised for their dedication towards environmental protection. In this connection, Smith (2010) claims

that, whilst some regulations may be interpreted as burdens, they may also generate what is known as first mover advantages. Some industrial sectors tend to be specifically targeted by such regulations. As the EU's single market is part of a global economy, it may lead to certain competitive disadvantages vis-à-vis the rest of the world.

1.1 General background

On August 14 2019, a ground-breaking EU-regulation was launched. The regulation which goes under the name; "Regulation 2019/1242 setting CO₂ emission standards for heavy-duty vehicles" (European Commission 2020a), was the first ever of its kind, committing the manufacturers in Europe to comply. The regulation was formed within the framework of the EU's actions to meet the targets of the Paris Agreement, as well as to reflect the union's own goals. According to the Commission, the regulation would also stimulate the technological leadership of European manufacturers and suppliers technological leadership as well as cutting down on the fuel consumption. Over a 10-year period, the Commission expected the regulation to yield a reduction of 54 million tonnes of CO₂, an increase of GDP and the creation of more jobs, savings in terms of a reduction in oil consumption, as well as an uptake of new technologies by low- and zero emission incentives (European Commission 2020a).

In its original form, the European cooperation was focused on the economy, striving to remove barriers for economic growth and pave the way for industrial success. This is also an ambition that is still valid today. Yet, clearly, current European politics is not confined to economy only but involves a range of other important areas. One of them is the environment, an issue that appeared on the political agenda in the 1970s, and soon became a significant policy area of the union, not last through the Treaty of Maastricht (e.g. McCormick 2001). Environmental concerns are now incorporated into all policy-areas as a primary objective of the EU. However, the implementation of environmental reforms has proven difficult in many cases because of conflicting interests, which in its turn has led to several compliance issues (e.g. Börzel & Buzogány 2019).

In the light of this complex situation, the European Commission is obviously faced with a challenging task. It is inevitable that the EU remains a frontrunner in the work towards a sustainable and healthy environment. Yet, there is a strong desire to keep the industrial success of Europe. The political economy of the EU rests on a successful internal market, one

of the cornerstones of the union, as it promotes a competitively driven economy for businesses (Sauter 2011). At the same time, other giants in the world are knocking on the door, especially Asia, where the rules are often different concerning the environmental aspects of the industry. Thus, there is not only an environmental and economic dilemma to consider for the EU, but they also need to maintain their strong international position, and try to establish European standards across the world. However, to realize this ambition, the development has to start internally, in Europe itself, by aiming to break new ground in terms of policy and regulation as well as public acceptance.

The evolving policy-making process in the EU has been recognized extensively over the years. The debate whether federal or intergovernmental forces drive the integration has dominated the field. Yet, the rise of perspectives acknowledging a multi-layered understanding of the EU has gained attention within the academia in general as well as within a variety of EU institutions. The governing of Europe is now said to be vested into many different levels of governance, where state authorities as well as non-state actors on local, regional and global levels are part of the process, an explanation known as Multi-Level Governance (MLG) (e.g. Hooghe & Marks 2001; Fairbrass & Jordan 2004).

As a case in point, Haug et al (2010) notes that environmental policy, in particular questions of climate change, is one of the most challenging policy-areas that politicians today have to deal with. Given the structure of the EU, the authors asserts that governance in this context is typically characterized by conflicting interests, stating that environmental policy is often outlined by evenly unpleasant choices. Within this unwieldy, yet institutionally anchored dilemma, the new emission standards for HDVs present an interesting situation that merits further consideration. According to Liljeheden (2019), the first ever decision to establish emission standards for new HDVs in Europe was a massive challenge. Neither of the sides was satisfied; on the one hand, the industrial organizations claimed that the targets were simply too ambitious; on the other, the environmental organizations argued they were not powerful enough. To a large extent, the conflict seemed difficult to solve, but with the establishment of a new policy, an escalating debate and the implementation of step-by-step reforms may lead to policy stakeholders having to accept compromises and learning from each other.

1.2 Preliminaries

Richardson (2015) describes the policy style of the EU as a ‘consensual promiscuity’ arguing also for the use of the term ‘messiness’ in the conceptualization of the political system. This may raise an eyebrow or two, but it still seems to make sense from a political science perspective. Firstly, the structure of EU’s policy system is challenging to describe, and even harder to formulate theoretically in order to make it applicable to all types of EU policy research. However, the multi-level policy system enables researchers to construct cases for the different actors and stakeholders in the policy-process. Secondly, within this complexity, one must not forget that the foremost political instrument of power derives from the ability to explain what politics is about, i.e. how different agendas are set. Having multiple actors on the political arena will always generate a certain level of unpredictability, something which manifests itself even more in studies of the present type. Thirdly, it is important to analyse the evolving policy dynamics and try to shed light on the action of stakeholders and communities in order to understand their different roles in the process. This would be possible with an actor-centred approach, in the same way as when the political agenda is ‘unpacked’ into workable proposals that the stakeholders engage in co-operatively while trying to influence it.

Furthermore, Richardson (2015) suggest that for studies aiming to understand interests and ideas in complex problems would benefit from taking their starting-point in a view of the EU as a multi-level system. This would make it possible to study how each instance frames the problems which the policy is intended to solve. This is in particularly important because of the unspecified policy formula of the union, which in itself is highly dependent on the subject (Wallace et al. 2005). Searching for just one model to explain the policy process runs the risk of becoming too narrow and thus not providing the full picture. Many poorly fitted generalizations of EU policy making, often contested, could be overcome if analysts would simply embrace approaches with uncomplicated and complementary concepts, so that each factor and actor, representing a certain characteristic of a specific multi-level interplay can be analysed in depth (Richardson 2015). Based on this, the present study applies an approach in which environmental and industrial actors involved in the HDV emission standards policy receive the primary attention, as suggested by Selin and VanDeveer (2015). These actors are studied through the lens of an Advocacy Coalition framework (ACF), which is a theoretical approach organizing stakeholders and various policy participants into coalitions, and the policy field into a policy subsystem.

The advocacy coalition approach enables the researcher to study the interactions of policy stakeholders and their beliefs. This may shed light on both how the formulation of the policy has emerged and how it has possibly been affected. In the ACF, beliefs are structured into three tiers: deep core beliefs, policy core beliefs and secondary beliefs, and together they can be said form a belief system. For conflicting policy interests as described above, it is expected that a policy change would lead to a coalition learning or accepting the view of the other coalition. This also includes the objectives of the policy if the conflict is intermediate and does not interfere with their fundamental beliefs (e.g. Nohrstedt et al. 2017).

1.2.1 Interests, actors and roles

In the academic literature, the notion of interests, or interest representation, has been described as a typical collective activity, which is set in motion by organizations, sometimes referred to as pressure organizations or interest organizations (e.g. Fairbrass & Warleigh 2003). Common terms for this kind of activity include lobbying, mobilization and representation. Fairbrass and Warleigh (2003) suggest that studying interest representation in the political sphere is important because of the multi-level systems that can be identified in current politics. Moreover, as highlighted above, the lack of a specific policy formula creates an ever-changing pattern, in which the possibilities to influence, and the implications of influencing, might cause unwanted effects for the political agenda or the democracy in general.

In the present study, the action of two types of interests, or coalitions will be considered in the light of the emergence of the HDV emission standards policy. The organizations in question are the European Federation for Transport and Environment (T&E), representing the environmental perspective, and the European Automobile Manufacturer's Association (ACEA), representing the automotive sector. The former includes an array of organizations advocating for a sustainable and environmentally-friendly Europe, arguing specifically in favour of reduced emissions, whereas the latter rather sides with the automotive industry, as represented by several sizeable multinational companies, working for the general prosperity of the sector.

1.2.2 Statement of the problem

Given the above preliminaries, it is clear that a delicate situation has evolved in the political discussion of HDVs and environmental issues. Essentially, the problem derives from the extensive use of HDVs in society and the impact of it has on the environment, notably in the form of emissions. The introduction of environmental regulations has certainly proven challenging for the EU, which traditionally have focused on reducing barriers in order to increase the potential for economic growth. Yet, it has been declared that the environment now lies within the core of the EU policy framework. The formulation of new policies, with all its pros and cons for European well-being and growth, constitute a constant challenge for European legislators. The complexity of the situation is further accentuated by well-established interests in the target domains, whose representatives have been invited to the drawing table, in accordance with the governance structure of the EU, as a means to bring the decision-making processes closer to its citizens. At what levels these interests influence the policies are often difficult to pinpoint, but we know they are influential, because otherwise they would not exist (e.g. Dür 2008). Thus, the new HDV emission standards policy constitutes an interesting and thought-provoking exponent of this delicately balanced situation, the origin and development of which clearly warrants further investigation. At the same time, it may also question aspects of the legitimacy of the policy and the decision-making system.

1.3 Purpose of the study

With aspects of the research problem identified, we may now turn to the specific purpose of this paper. Organized as a case study, it aims to increase our understanding of what underlines the EU policy formulation of environmental concerns in a competitively-driven political economy. Hence, the study is designed to broaden the picture of how the aspirations of incorporating climate change policies are integrated in complex governance structures, and to what extent, if any, that they run the risk of becoming undermined by that structure. The study thus recognizes the EU as a multi-level arena, taking stock of the multi-level governance contributions as a point of departure, while applying an actor-centred approach to focus on what beliefs that tend to condition the policy formulation from an advocacy coalition framework perspective. In particular, the study examines the actions of two coalitions – The European Federation for Transport and Environment (T&E) and the European Automobile Manufacturer's Association (ACEA) – both of which are investigated from the point of view

of policy-oriented learning', which is a central feature of the advocacy coalition framework. To realize these objectives, the study aims to address the following research questions:

- How can the roles of the advocacy coalitions be described in the formulation of the new emission standards policy for HDVs?
- What belief systems seem to condition this process?
- To what extent can policy-oriented learning be said to have taken place between the automotive and environmental coalitions?

1.4 Delimitations

Like in most other investigations, the present study features certain delimitations. First of all, it should be noted that the study is territorially limited, i.e. the study takes an EU-perspective, thus dealing with stakeholders and organizations within the EU only. Yet, as the EU is part of a global world, the findings may still be relevant, and even important, in other contexts and circumstances as well. Furthermore, while CO₂ emissions from transportation have a host of different sources, not only from road-based vehicles, the study focuses strictly on heavy-duty vehicles only. The study is also actor-centric and deals with defined rather than intergovernmental negotiators and member states. Finally, it should be noted that the material for the study is limited timewise, specifically to the period of 2009-2019.

1.5 Disposition

The disposition of the study is as follows. After the present introductory section, the study proceeds with section 2, featuring an overview of previous research as well as an account of the theoretical foundation of the study. Section 3 treats the methodological aspects of the investigation, primarily the research design, the target material and the process of analysis. In section 4, the results of the study are presented. Section 5 then brings together the observations made and discusses them from different perspectives, trying to synthesize them into a more general picture. Finally, Section 6 wraps up the study by summarizing its main findings and drawing some tentative conclusions.

2 Previous Research and theoretical foundation

The establishment of environmental policies in a political economy has been covered in a number of research fields. The point of departure for most studies seems to derive from the ‘million-dollar’ question on how governments can please both the environment and the economy at the same time. This paradox captures what Kapstein (1989) refers to as a ‘regulators dilemma’. This type of policy-making and governing has according to Haug et al. (2010) proven to be not only difficult, but also demanding because of the continuously difficult choices and trade-offs that law-makers have had to do. The EU has since acknowledging the environment in its core been productive in terms of regulations, producing arguably the world’s most ambitious environmental framework, and seemingly been highly influential even outside the European borders (e.g. Wagner & Anastasiadis 2014). Moreover, Haug et al. (2010) stress the importance of looking at ‘problem perceptions’ of actors, i.e. how stakeholders frame policy issues, as such a perception may impact the formulation of policies. Somewhat surprisingly, such studies are few, and therefore deserve more attention.

The automotive sector, producing and selling conceivably harmful products has been subject to a great deal of attention in the process of implementing environmental regulations, which has resulted in an increase of lobbyists in Brussels. Wagner and Anastasiadis (2014) stress that businesses, have taken a somewhat dual mentality in this regard, expressing both costs and opportunities. Accordingly, findings from previous studies indicate that automotive industries now allocate a considerable amount of resources to environmental issues. Presenting itself as a paradox, this environmental course of action may be considered uncertain, given that consumer attitudes not seem to reflect consumer behaviour. In regards to that, Whitmarsh and Köhler (2010) argued that environmental investments would not be considered a priority for businesses until it is economically viable, or when pressures arise in the form of regulations. Similar results were found by Dettmer and Wangler (2010), who acknowledged that the marginal cost of fossil fuels was lower than the marginal cost of being environmental friendly.

Turning now to the environmental organizations, Princen (2012) emphasize that environmental groups are considered as having great potential in framing issues at the agenda setting stage. Along with this, Long and Lörinczi (2009) underline that environmental organizations have been very effective in campaigning for their cause, mobilizing several

resembling organizations as a unit to counter, and to some extent compete with powerful businesses. A particularly important note is that environmental interest representation is value and emotion-based, whereas the industrial interest representation is more policy oriented.

2.1 Setting the scene – Multi-level governance

Judging by the essence of the above section, it becomes obvious that the EU is a multi-level system. The establishment of governance mechanisms has intensified the commitment of issue specific organizations to engage in the politics at the transnational level (Berkhout 2010). Hence, one may regard the environmental legislation of the EU as a remarkable achievement, notably because of the extraordinary difficulties characterizing the field. Selin and VanDeveer (2015) stress that the formulation and creation of environmental policy is characterized by a complex governance system. The formulation and implementation are thus a dispersed area, which together with the presence influential actors require research agendas to investigate how the actors interact and behave in the EU.

When Gary Marks introduced the concept of Multi-level governance, it symbolized a step away from the traditional international relations theories of European integration. Multi-level perspectives have gained attention as they can be utilized to construct more complex models and theoretical frameworks. Suitable, for the quest of understanding the puzzles of today's political issues, which amongst others Eising (2015) stress have become common practice in terms of understanding the EU. Moreover, the European Commission launched, in 2001, a White Paper, clarifying the governance of the EU, stating amongst other things bringing the citizens closer to the institutions as one of the main objectives. Thus, acknowledging multiple actors and at different levels in the decision-making process (European Commission 2001a). This declaration was later made clear in the treaty of Lisbon, which expanded the conditions for participatory democracy. The Commission could now be encouraged to put forth legislative proposals if at least one million EU-citizens supported it, significantly changing the prerequisites for environmental and societal groups to engage in the process (cf. Benson & Adelle 2012). In accordance with Tortola (2017), one can therefore argue that the EU is a sort of 'web', where actors, at different level of governance have to collaborate and compromise on policy issues.

Furthermore, while MLG has been widely acknowledged, it cannot be regarded as anything else than a concept describing the EU. For example, Ongaro (2015) assert that MLG is an important framework in the study of governance, European politics and beyond. Yet, it lacks a causal motor and has been criticized as being too descriptive rather than explanatory, i.e. acting more as an umbrella phenomenon than a theory. Tortola (2017) argues that MLG as a theory is too ambitious, and too opaque to handle, and to some extent capable of being applied in most cases, thus being very popular. And meanwhile this study neither aims to identify the EU as a case of MLG, or establish a German asymmetrical interdependence as Moravcsik's (1998) liberal intergovernmentalism seemingly would. Instead, this study adds another lens through the advocacy coalition framework, as suggested also by Richardson (2015). Connecting alternative streams of research has been regarded fruitful, notably by providing explanatory power (e.g. Ongaro 2015).

2.2 The ACF as a framework

The Advocacy Coalition Framework is a model for public policy analysis created by Sabatier and Jenkins-Smith. The framework emerged when Sabatier tried to find an explanatory model that would capture the prime features of the bottom-up and top-down approaches, as well as allowing technicalities to have a more prominent position in the dilemma of theorizing complex policy systems (Jenkins-Smith & Sabatier 1994). Sabatier (1998) described the basics of ACF as a model that would provide a coherent way to understand the dominant factors and processes that influence the outcome of the policy, looking at implementation, policy formulation, problem definition and revision at a specific policy field. Amongst others Nohrstedt and Olofsson (2016) assert that the ACF has proven useful when looking at conflicting policy-fields and how strategies, interactions and relationships between actors in complex political system. And in such instances, proven useful in studies which aim to identify or understand any of the above factors in environmental policy.

The ACF approach has become increasingly popular in Europe. The framework facilitates the researcher to study the function of actors instead of governments in the policy process. A recent study by Chikowore (2018) suggests an actor-centred approach to the ACF, as it allows to in-depth focus on the participation in the policy process. This is an approach that is delineated by policy, and implemented and influenced via close participation of actors affected by the issue. This viewpoint entails that efficient policy formulation only occurs

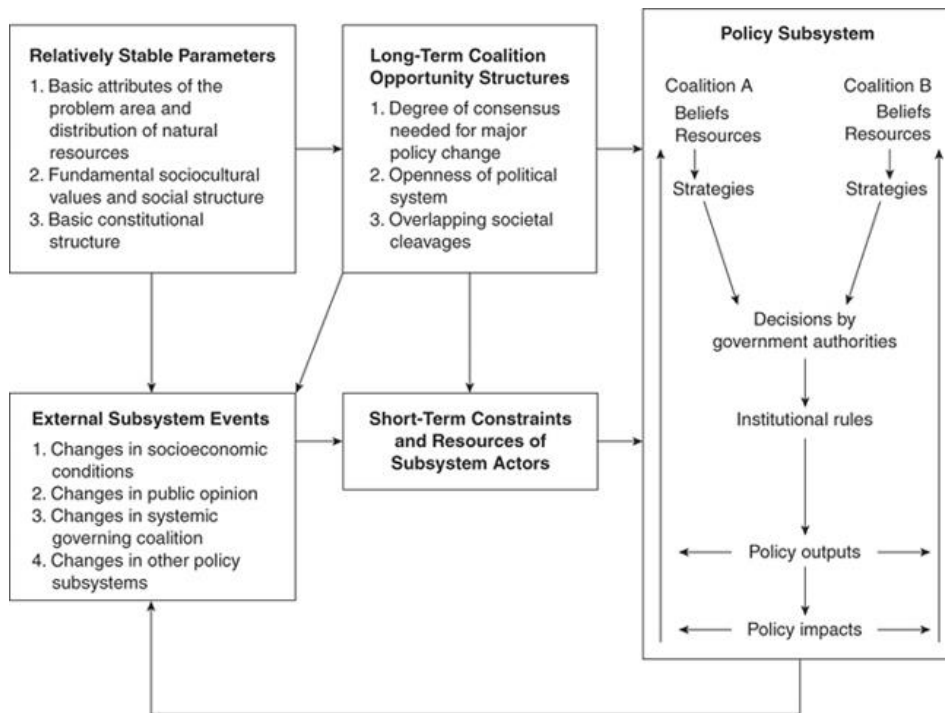
when all actors play their part, otherwise implementing the policy may be problematic. Furthermore, in the ACF, there are two types of actors, formal and informal. The formal actors are those who represent the establishment, e.g. executives and legislators, whereas the informal actors represent the civil society, e.g. pressure groups, interest groups, think tanks etc. In the policy process, the formal actor is responsible for the general formulation, while the informal to influence it by proposing alternative views and for example research.

The ACF takes for granted that actors are driven by their political beliefs and that actions, campaigns and policies are adaptations of those beliefs. These beliefs are a key aspect in how the authors describe an advocacy coalition;

“At the heart of the ACF is the coalition concept. Coalitions consist of actors with shared policy core beliefs who engage in nontrivial degree of coordination, ranging from developing joint plans to sharing information. The goal of a coalition is the attainment of policy objectives, meaning the protection or change in government policies” (Weible & Sabatier 2011, p. 2).

Weible and Sabatier (2011) acknowledges that actors, particularly in coalitions, when engaging in the policy process forms what is known as a policy subsystem, which is the central feature and primary target of the analysis in this approach. A policy subsystem exists within a political system, however, as a subunit with actors specialized on a specific area or topic. Nohrstedt et al. (2017, p. 139) describes the policy subsystem as follows; “Policy subsystems are defined by a policy topic, territorial scope and the actors directly or indirectly influencing the policy subsystem affairs”. Furthermore, the potential for the stakeholders to influence are shaped by a few factors. Figure 1 depicts these, and the flow of the ACF, as constructed by Weible and Sabatier (2011).

Figure 1. An overview of the ACF model (cf. Weible & Sabatier 2011)



As shown by the figure, what influences the actors within a policy subsystem is thus determined by relatively stable parameters, external events, long-term coalition opportunities as well as short-term constraints and management of resources.

2.2.1 Relatively stable parameters

Relatively stable parameters are the fundamentals that provide the basis for the problem. These parameters are described by Weible & Sabatier (2007) as featuring four components, underlining the structure and nature of the issue. The first component regards key attributes of the area in concern, (environment, technology, efficiency etc.), the second regards the allocation of natural resources (access to research, financial resources). The third component relates to social structure and socio-cultural principles (values, norms), whereas the fourth concerns the constitutional foundation (legal foundation). These parameters are in nature broad, but relatively stable and shape the political landscape, i.e. establish the prerequisites, procedures and structure for policy-making over time. Parameters are in general not targeted by policy participant strategies (Weible et al. 2009).

2.2.2 External events

External subsystem events are events that influence a policy subsystem. These events include, socioeconomic changes, change of public opinion, alterations of government and systematic

coalitions, policy arrangements, as well as influences by other subsystems. Studies using the ACF suggest that events are important, because they frequently lead to shifts in public opinion, affecting amongst other things, resources of stakeholders. The increased knowledge of environmental aspects in the 1960-70s is a strong empirical example, generating a considerable number of stakeholders and subsystems while making the environment legally entrenched. Moreover, external events may also cause disturbance towards a policy subsystem, as it can shock the beliefs of actors (e.g. Weible & Sabatier 2007; Weible et al. 2009; Nohrstedt et al. 2017).

2.2.3 Long-term coalition opportunities and short-term constraints and resources

Moving on, the long-term coalition opportunity structures regards an assessment of in particular three factors: In order for a coalition to form, stakeholders have to reach a level of consensus that a policy needs to be either changed or preserved. Having reached that, the opportunities to influence, is determined by the openness of the political system, and to what extent there are any coinciding societal cleavages.

Furthermore, the short-term constrains and the resources of stakeholder's regard potential limitations to influence a subsystem. Such constraints may derive from a number of areas, notably external events. In the happening of a major event, how the coalition problematizes, and what limitations they identify may be relevant. Moreover, the constraints also affect resources, and thus affect strategies and the potential to make their voices heard (e.g. Weible & Sabatier 2007; 2011).

2.2.4 Policy subsystem

Let us now return to policy subsystems. As briefly mentioned before, a subsystem exists within a broader political system, and focus on specific topics. The subsystem is specified by its boundaries, which concerns: territorial scope (where), substantive scope (what) and an array of policy stakeholders (who), from multiple levels of government, media, research institutions and interest groups to mention a few. In order for interested participants to increase their chances of influencing policy, they tend to specialize and engage in the process for a long period of time. Weible and Sabatier (2007) argue that these boundaries may be challenging to define, partly because of the multi-level political system. Hence there is no rule

on deciding these boundaries. Nevertheless, Weible and Sabatier assert that this adds flexibility (e.g. Weible & Sabatier 2011; Nohrstedt et al. 2017).

2.2.4.1 Assumptions of a policy subsystem

Weible and Sabatier (2007) stress that a key feature of policy subsystems in the ACF is that it builds on several assumptions. The first is known as ‘the model of the individual’. The ACF assume that individuals act and are motivated rationally, yet bound by a flawed intellectual capacity to learn about, and understand a complicated world. Accordingly, individuals have a limited ability to absorb new information, and tend to simplify the consequences of it. The individual refine perceptions through what the authors call a ‘belief system’, which is a hierarchical system in three tiers. The first tier of the belief system regards deep core beliefs, which is beliefs that are hard to change, ontological, fundamental and normative. The intermediate/middle tier concerns the policy core beliefs, and is stretched over a whole policy subsystem. These beliefs are more flexible, yet resistant to change, normative and empirical, being the application of deep core beliefs. Hence, policy core beliefs regard aspects such as the effectiveness of policy instruments, the balance between government and market, and the severity of problems and actions. The third and final tier are secondary beliefs. The secondary belief stage is the most susceptible to be altered, partly due to events and new information. These beliefs are formed to implement policy core beliefs and relate to particular preferences and empirical assumptions that concern the subcomponents of a policy. For example, they can be specific tools for reaching the policy objective (e.g. Nohrstedt et al. 2017).

The second assumption of a policy subsystem regards the success of advocacy coalitions. The basis of this presumption leans on the participants’ ability to convert first and foremost middle tier beliefs into actual policy. To increase the chances of being successful, participants and stakeholders look for allies. Moreover, Weible and Sabatier (2007) acknowledges that conflicts between coalitions within the same system can lead to what the ACF refers to as a ‘hurting stalemate’, in which participants on each side of the argument won’t accept a status quo situation.

Furthermore, Weible and Sabatier (2007) state that if policy participants are unable to reach consensus, the disagreement usually escalate into vivid political conflicts. As a result, the ‘clash’ is mediated by a policy broker. The broker role could be played by different actors, yet, often held by courts, high civil servants and elected officials. The broker will attempt to

find a plausible compromise of the stakeholders. The broker is often equipped with decision-making authority, and in most cases trusted by the participants on both sides. Also, Nohrstedt et al. (2017) note that a key feature of the broker is to ease the learning among opponents within a subsystem.

The fourth assumption regards the use of resources. Weible and Sabatier (2007) stress that actors will deploy a number of resources, in order to influence at multiple venues. The resources the stakeholders include financial resources, public opinion, information, leadership etc. Hence, the ACF anticipates that stakeholders make use of multiple pathways to benefit their cause. Leading to the fifth assumption: expect the stakeholders to look for areas where they would possess a competitive advantage by using the resources. Allocating considerable time to find a suitable arena for their cause, initiatives are often launched and defended simultaneously on multiple arenas (e.g. Nohrstedt et al. 2017).

2.2.4.2 Policy-Oriented learning

The ACF features a few different pathways in terms of theoretical emphasis. One of these major pathways concern policy-oriented learning, which has been acknowledged as suitable in studies using the concept of beliefs and learning of coalitions to understand new policy or policy development (e.g. Weible et al. 2009). Nohrstedt et al. (2017, p.151) defines policy-oriented learning as; “enduring alternations of thought or behavioural intentions that result from experience and which are concerned with the attainment or revision of the precepts of the belief system of individuals or of collectives”. Learning are thus linked to changes of coalition beliefs, i.e. how they interpret the problem, what they see as solutions, and the political strategies that is formed because of it. Sabatier (1988) argued that learning is an instrumental feature of policy change, because coalitions will always seek to improve their understanding of the ‘world’, and thus be able to better influence policy outcomes.

Nohrstedt et al. (2017) present four explanatory categories of policy learning. The first regards ‘attributes of forums’, previously described as venues/arenas. Emphasising how the institutional arrangement of forums influence the magnitude of learning among participants. Defining conditions of these concerns the openness of the forum, and to what level the participants share analytical disciplines as well as norms of conduct. The second category deals with the ‘level of conflict between coalitions’. Nohrstedt and colleagues stress that the level of conflict correlate to what extent actors identify threats from policy opponents, in

regards to their policy core beliefs. Conflict-wise, this has been described as ‘inverted quadratic’, which relate to the level of conflict as determining the potential for ‘cross-coalition learning’: at both low and high level of conflict, the cross-coalition is low, because actors tend to, at the lower level turn to other subsystem subjects, whereas the high level of conflict, try to defend their positions and interests at all means. However, when the conflict can be identified as in-between, the coalitions are threatened moderately and engage in the issue.

The third category concerns the ‘attributes of the stimuli’. Nohrstedt et al. (2017) claim that the experience of coalitions and the perception of new information reflect the ‘attributes of the stimuli’. The authors stress that, the more unmanageable and intractable an issue is, lower cross-coalition learning is likely. The fourth category refers to ‘attributes of actors’, i.e. the characteristics of stakeholders. This may include resources, belief systems, networking abilities and strategies. The belief systems are key, given they are the filters which information is interpreted. If the beliefs are extreme, the likelihood of learning from opponents are low, etc. Finally, the usage of the framework is outlined in detail the methodological section.

3 Methodology

This section presents the overall research design of the study. It deals with some crucial methodological aspects, the target material as well as the main features of the research process as such. Furthermore, the methodological section also includes ethical considerations, the quality of the study as well as limitations.

3.1 Research design

In general terms, the study features a qualitative case study research methodology. The choice to conduct this type of study is due to the exploratory research problem chosen and the specific purpose of the study. The qualitative approach allows for an in-depth investigation of a particular context and fits the aim the thesis: increasing the understanding of what particular factors condition the EU policy formulation of environmental concerns in a political economy. This approach is deemed beneficiary because it provides an opportunity to uncover and interpret how and why the coalitions engage in the policy processes.

The interpretivist approach fixates on the meaning of things. It can be described as a form of social inquiry trying to make sense of what the 'world' means for the person or group that is being studied, all in order to understand their actions (e.g. Willis 2007). Yanow (2000) points out that the use of interpretative method for policy issues is often focused on tensions with regards to a certain phenomenon. The tension emerges when there is a mismatch between two sides, which gives an opportunity to analyse why agencies, policies or opponents do things differently. Through a process of interaction, stakeholders of such an issue tend to revert to similar or even the same acts, and use corresponding language in their aims and actions to realize their views. Furthermore, the interpretation process is based on aspects of hermeneutics. I build upon previous contributions of interpretative approaches suggesting that one must ask oneself, continuously through the research process (e.g. Esaiasson et al. 2012; Yanow 2000; Bacchi 2009): What is the problem? What is the reason for it? And what is the solution to it? The answers to the above questions are often framed through language or actions, and produced in a specific context and background. The interpretative approach thus rests on interpreting 'texts' that exists within a broader range of 'texts', i.e. we can understand them because of other texts. By doing this, the interpretation process involves what has been known as the hermeneutic circle, which requires navigation back and forth within and between texts and contexts (e.g. Topper 2011).

The research approach adopted here derives from a combination of inductive and deductive logic. This is because these approaches are seldom used in their pure form. In almost all cases the researcher, has to make some empirical observations to understand a theory, and vice versa. Hence, the present study can be acknowledged to exist in a grey-zone, being simply regarded as abductive. Furthermore, the process leading up to this, derives from the fact that there are multiple ideas and drafts of research projects within the same field. The most important endeavour is to match the real world with a theory that is relevant to the identified research problem. Another issue concerns how the research investigation and project kept changing due to this process, which turns out to be consistent with how Dubois and Gadde (2002) describes the abductive approach to case research. Dubois and Gadde (2002) argue that the research process is seldom characterized by a standard plan with pre-set stages, but rather that going back and forth may be advantageous in case study research.

3.2 The research process

The research process can be described as a systematic combining, going back and forth between theoretical and empirical observations. Yet, initially a more holistic approach was taken, trying to conceptualize the field of this study. This eventually led to settling with the automotive industry and the environment, leading to a vast amount of literature and ideas being processed during the autumn of 2019. After establishing the frame and problem, the focus turned to explanatory aspects, leading to elaborations on an abundance of theoretical concepts, running into a number of obstacles. As a political scientist within the field of European Studies a considerable amount of literature leans on grand integration theories, yet a strive to test another angle would lead to settle with the EU as a multi-level system, in accordance with MLG literature. Yet, the lack of explanatory factors and critique of MLG would lead into finding the advocacy coalition framework. Having established a theoretical approach, the research question was formulated. The ACF did not only provide a theoretical lens, but also a structure for the empirical work (outlined below). Thereafter, a period of empirical work followed, refining back and forth, ending with an analysis of the material in order to understand what underlines the EU policy formulation of environmental concerns in a competitively-driven political economy. The process is outlined below in Figure 2.

Figure 2. The research process

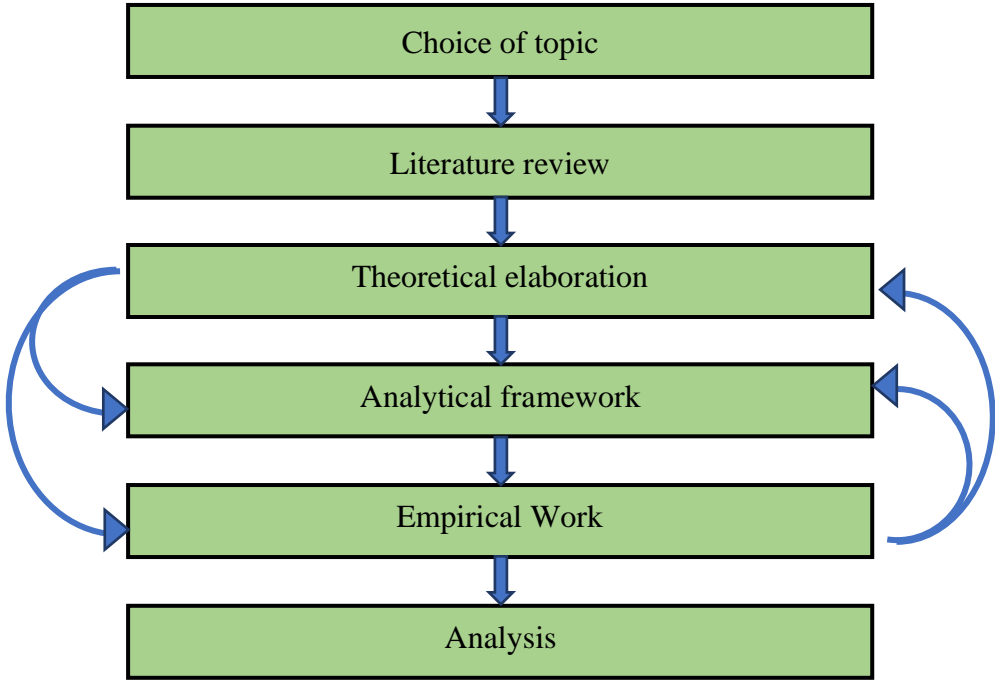


Figure 2. The authors illustration of the research process

3.3 Case study approach

The study concerns the emergence of the heavy-duty vehicles (HDV) emission standards policy in the EU, and the influence of two established advocacy coalitions, the European Automobile Manufacturers Association (ACEA), and Transport & Environment (T&E). The case can be found within the broader paradox of environmental issues in a political economy. In accordance with a single case study design, process tracing is used. This allows for an intensive study of the subsystem, and most notably the coalitions. To help organize this process, the ACF acted as the structure and guideline for relevant factors. Process tracing is suitable when it comes to a complex system characterized by multiple interactions that influences the outcome of policies. The essence of process tracing concerns the identification and confirmation of mechanisms that affect the outcome, and in this case, what will be looked upon is the actions concerning CO₂ emission standards of two coalitions to the recently established regulation (e.g. George & Bennet 2005). Doing this, the study is delimited to a ten-year period, from 2009 to 2019.

Considering the context of the problem and the preliminaries characterizing the study, a qualitative approach is beneficiary. The rationale behind the construction of a heuristic case study as Eckstein (2009) describes it allows for a specific policy subsystem with individuals or collectives to be analysed. Knowing not only what causes an act, but the actors reason for causing that act is promising for understanding the process and the meaning behind different groups trying to affect policies (e.g. King et al 1994; Eckstein 2009; Gerring 2006).

3.3.1 Sampling

The case selection derives from the fact that the EU has been recognized, and described as a multi-level system, in which interests and organizations have been invited to the drawing table. EU-law is superior to domestic rules and regulations, and therefore has potentially larger impact. The role of interests in the formulation of policy is thus imperative, in order to understand and evaluate new policy. Hence, two established coalitions that exist within this sphere have been selected. The ACEA represents the automotive industry, whereas the T&E represents the environment.

The choice of building the case on these two coalitions derives from the fact that they, as the problem is formulated in this study, represent two entirely different interests. These interests

have been problematized in previous contributions as conflict-related, and potentially harmful for one another. The emergence of environmental norms has over a short period claimed the front seat of European politics. At the same time, the automotive industry is one of the largest sectors in Europe, accounting for approximately 6% of the jobs in the EU, as well as about 7% of the GDP. And, therefore, it is relevant not only for the scientific community, but the society in general. Furthermore, the choice of having T&E representing the environmental side derives from the fact that it represents multiple organizations, as well as are part of larger networks active within the EU, amongst others the Green 10. Though, there may be other interesting organizations, however, the focus lies on the emergence of HDV emission standards policy, this, an organization that is fully committed to transportation was considered a better choice. Similar reasoning can be found on the ACEA, who represents the automotive manufacturers in the EU. Consequently, the case deals with a policy subsystem of two specific organizations, with different views, yet the same area of concern. A third coalition could not be determined with regards to the preliminaries of the study. In addition, potential influences beyond the European sphere were ruled out as specified in the delimitations. The ACEA and T&E therefore fit the problem of concern, and the two represent a large number of businesses and organizations that is affected and trying to affect the policy, which made them relevant for the study.

Other notable and influencing factors, which are included in the ACF, have been selected through an assessment of previous research, in particular ACF-literature. These components have been rigorously developed through research projects, and thus paved the way for a relevant selection. For example, the relatively stable parameters reflect the basis of the playfield that the policy issue exists in, which in its turn is reflected by EU-regulations and procedures. A similar rationale is behind the selection of long- and short-term constraints, however, these have also been established by looking at the coalitions. Moreover, the external events have been established by the guidance of the ACF-literature and through assessing actions and campaigns, mentioned and implemented by subsystem participants. These events, notably the financial crisis were also noted by the EU in the policy discussions. Furthermore, the process of establishing belief systems and the analysis is outlined below in section 3.5.2.

3.4 Material

The material collected to conduct the study consists of position papers, articles and reports published by the two coalitions, as well as other relevant sources, such as previous research, EU-reports and documents. The decision to use such material derives from a number of reasons. The first regards the time and possibilities. The author acknowledges the practicality and strength of interviews for this kind of research problems, however it was noted quite early in the process that T&E (Transport & Environment) would not agree to an interview, therefore, neither of the coalitions was contacted because of consistency reasons. In addition to this, a trip down to Brussels (where both coalitions have offices) was planned, but that was not possible because of the COVID-19 crisis. Yet, utilizing search motors, primarily Google search and T&E and ACEA's own publications archives, a strict document focused analysis was chosen. In addition, parts of the material are found by looking at expert groups concerning the issue of the study where both coalitions are active and where the Commission is the initiative carrier. The sampling of documents was made through key words with the requirement that they concerned or included HDVs. The following key words were used in the search: emissions, standards, pollution, environmental impact, efficiency, environmental policy, from 2009-2019.

When researching the past, secondary material is a solid source of information, and there is also an abundance of available data. Most of the publications that are relevant for a study like this are publicly available. However, one must be aware that secondary data may be biased, based on outdated sources and methods. A lot of focus has been directed towards this issue, utilizing known and well-established sources. For example, all Google search documents were scrutinized carefully and followed to their source before being considered. For example, the official journal of the EU, was used when looking at legalities. Regarding T&E and ACEA documents, all information was found through their own publications archives, see for example T&E (2016a; 2017; 2018a), and ACEA (2016a; 2016b; 2016c). Furthermore, at some points, the amount of information varied between the coalitions, which in itself was not a surprise. For example, the T&E target more transport areas (air-transports, sea-transports), whereas the ACEA more specifically targets road transports. That potential bias was considered, but not deemed as an issue, due to there always being a sufficient number of documents available.

3.5 Analysis process

A qualitative case study, featuring process tracing and the ACF, could be described as similar to what Kuckartz (2014) call ‘evaluative qualitative text analysis’. This is a course of action that involves classifying, assessing and evaluating content. The analysis process encompasses an empirical analysis, as well as an associated ongoing theoretical analysis. The analysis process illustrates how the theoretical framework structured the empirical analysis, and concurrently contributed to the theoretical development and understanding. The analysis process did as such generate not only the findings of the study, but also the structure. The approach also allowed for an assessment of the different assumptions provided by e.g. Weible and Sabatier (2007) Weible and Sabatier (2011) and Nohrstedt et al. (2017).

3.5.1 Empirical analysis

Below, (see Table 1) is an assay scheme of the application of the framework, inspired by Weible and Sabatier (2007). The assay scheme is a codification of the data based on the premises of the ACF. The process of establishing the components of the framework followed a mix of inductive and deductive approach, with insights from previous contributions on the environment, policy-making and governance systems leading to the present version of the ACF. Accordingly, as the focus of my analysis concern the beliefs of the coalitions within the subsystem, the components of the ACF (up until belief systems) were formulated through a careful reading and evaluation of past contributions, the problem in concern and through the stakeholders. As for policy-oriented learning, observable changes of beliefs, or the entire belief system as such, would imply that a certain amount of learning has taken place in the policy subsystem.

Table 1. The application of the ACF

<i>Components of the ACF</i>	<i>Heavy duty vehicles emissions standards</i>
<ul style="list-style-type: none"> • Relatively stable parameters <ul style="list-style-type: none"> - Legal Foundation - Key Attributes and resources 	<ul style="list-style-type: none"> Factors that shape the possibilities to act EU regulatory framework Emissions, primarily CO2, competitiveness. Financial and scientific resources.
<ul style="list-style-type: none"> • External events 	<ul style="list-style-type: none"> The financial crisis. The Dieselgate
<ul style="list-style-type: none"> • Long-term coalition opportunities and short term constraints 	<ul style="list-style-type: none"> White paper on governance. Participation through expert groups, conferences etc. Transparency.
<ul style="list-style-type: none"> • Policy Subsystem <ul style="list-style-type: none"> - Substantive scope 	<ul style="list-style-type: none"> HDV emissions in Europe Classification of vehicles and GHG

- Policy broker
- Stakeholders
- *Coalition 1*
- *Coalition 2*
- **Belief systems**
 - Deep core beliefs
 - Policy core beliefs
 - Secondary beliefs

The European Commission
Environmental organizations, automotive manufacturers and businesses
The ACEA
The T&E
Model of the individual
Fundamental, (based on political philosophies)
Application of fundamental views to policy
Preferences of subcomponents

3.5.2 Theoretical analysis process

Taking the pathway of policy-oriented learning, with the methodological preliminaries as described above and in accordance with good research practice, the beliefs that determines the outcome of this study has to be operationalized. The interpretative approach calls for a description and account of how the beliefs are identified. In terms of the beliefs, the ACF does not provide a solid frame enough for identifying deep core and policy core beliefs. To deal with this problem, Weible and Sabatier (2007) acknowledges that beliefs, which are determined from ontological and normative assumptions of the nature of humanity, such as fundamental values, e.g. equality and liberty, market vs government etc. are characterized by the traditional right/left scale. The third tier of beliefs, which are secondary beliefs, are based on empirical findings.

Drawing on the rationale of Weible and Sabatier (2007), traditional political philosophies, most notably the key concepts of them, will act as indicators of the actors' deep core and in turn policy core beliefs. Moreover, as the political landscape keeps evolving, the choice is made to include 'Green', a rather new political ideology compared to the others. The establishment of the core concepts of the political philosophy derives from the distinct account for the ideologies by Heywood (2017). These political philosophies/ideologies are presented below in Table 2, and will not be elaborated further.

Table 2. Overview of political philosophies (cf. Heywood 2017)

	Liberal	Conservative	Socialist	Green
Deep core beliefs	Freedom, individualism, reason, justice and tolerance	Tradition, property, hierarchy and authority	Class, cooperation, community, equality	Ecology, environmental ethics, sustainability, holism

Policy Core beliefs	Minimal state, economic freedom and deregulation. Regards the nature as a resource to please human needs.	Intermediate state, tradition as a vector for a free market, protect and preserve. Regards the nature as a shaping force, and humans as superior to nature.	State control, interventions and regulation. Regards the nature as a resource for a common cause.	Environmentalism. Regards the nature as a cornerstone, an interconnected whole, i.e. a closed system. Sustainability as the common denominator for the political economy.
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The interpretation and establishment of what political philosophies characterize the respective coalition’s belief systems was made in accordance with discourse analysis methodology, as described by Bryman and Bell (2011). The topic of the study, i.e. the discourse, concerns the emergence of the HDV emission standards policy in the EU, and what beliefs that seem to condition this process. By examining language, which is a construction based on the views of the respective coalitions, the actions taken can be determined, and structured in accordance with the ACF’s belief system. Accordingly, as the analysis feature an interpretivist approach, in which the emphasis is situated on coalitions, the views and portrayals of the problem in concern leads to an action oriented discourse analysis. The views of the coalitions are presented through texts in the form of strategies, positions and articles, and reflect their ambitions in the policy-making process.

The ACF provides a suitable tool to structuring and analysing the belief system data. The categories deep core beliefs, policy core beliefs and secondary beliefs were accompanied by three questions that is central to the interpretative approach (e.g. Bryman & Bell 2011; Esaiasson et al. 2012; Yanow 2000; Bacchi 2009).: What is the problem? What is the reason for it? And what is the solution to it? Accordingly, drawing on the guidelines of the ACF, it provides a way to investigate the emergence of emission standards for heavy duty trucks and how this framework may shed light on how we can understand environmental aspects in a political economy. An advantage with the ACF approach, in particular the more descriptive factors is that it benefits the interpretative context, because it establishes the contexts (texts) in which other texts are produced. Therefore, ‘intertextuality’, were made visible by the parameters, external events and constraints included in the ACF, and contributed considerably to the hermeneutic circle.

The analysis process contributed to an understanding of how to structure the empirical section, the use of process tracing of the emergence of the HDV policy led to the creation of a second order narrative, which the belief systems is based on. A second order narrative means the author's construction of the empirical story (Elliot, 2005), which with the combination of process tracing appeared useful. Considering the study concerns the period of 2009-2019, the second order narrative unfolds the emergence of the HDV emission standards policy in the EU out of the views of the two coalitions. This was done by dividing the entire period of concern into sub-periods: 2009-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019. Multiple quotes were used to bolster the second order narrative, highlighting important features, contributing to the interpretative and explanatory relevance. Thereafter, the beliefs were determined by the political philosophies, suggested by Weible and Sabatier (2007), and presented accordingly to the tiers of beliefs and time periods. Lastly, an assessment of whether policy-oriented learning had taken place over the period was made possible.

3.6 Quality of the study

In order to ensure trustworthiness in accordance with established scientific requirements, this section addresses the quality of the study through four criteria for a qualitative research as provided by Guba (1981). The first criterion to regard is 'dependability'. An assumption of qualitative research is that they are hard to replicate, notably as the process adheres to the 'hermeneutic circle', and thus relies on how the researcher presents and choose to conduct the study. This issue is assessed through a detailed description of the research process and analytical process, which outlines how the study was conducted. The explanation of the research and analytical process specify the methodological aspects and explains in detail when, how and why they were used. In addition, the material as well as key concepts and structure of the framework has been carefully outlined to enhance this process. These measures lead to dependability, as it allows the reader to pursue and track the development of the study, and arrive at the same results, in particular the theoretical and empirical reasoning throughout the study.

The second criterion is 'credibility'. This criterion refers to how the findings represent a reasonable interpretation of the data, i.e. if the results make any sense. Measures to fit this criterion include early practical experience of the multi-level system of the EU through attendance of consultations, hearings and conferences in Brussels. In addition, months of

acquiring knowledge of public policy analysis, and the construction of multiple research proposals leading up to the present project has resulted in an intertextual foundation of the topic being studied. Thereto, another method to increase credibility is triangulation (Guba 1981). Triangulation has been used throughout the whole research process to cross-check data and interpretations. A vast amount of academic literature of public policy, methodology, European studies, political economy and the environment, and the automotive industry has been triangulated to construct a credible study. Furthermore, triangulation of documents from different time periods and making use of multiple sources provided more perspectives and high credibility throughout the analysis. Many different sources provided a good basis for a credible assessment the views of the coalitions.

The third criterion is ‘confirmability’, which regards the researchers investigate bias. Measures to cater for this criterion includes a comprehensive triangulation of data sources, in particular the belief systems, which accordingly reduce the likelihood of basing the results on the input on a few individuals. The sources used are comprehensive and provide a legitimate basis for assessing the material. Besides, using key concepts of foundational political philosophies, the choice of these derives from their importance and use in previous research as well as presence in contemporary society. Furthermore, finding the advocacy coalition framework literature allowed for a systematic combining which decreased investigator bias, as it created a need to go beyond the investigators own understanding of theoretical concepts (Guba 1981; Shenton 2004). Moreover, the detailed description of measures taken throughout the research process provides the opportunity for trail auditing, i.e. track the decisions that has been taken in the study. Further audit trail measures include discussing the thesis and different ideas on seminars, as well as continuous discussion, questions and feedback from my supervisor.

The fourth criterion is ‘transferability’, this refers to whether the findings can be used in other contexts with other settings. Measures to enable this includes a detailed description of the present case; the purpose and problem, theoretical framework as well as a methodological discussion, which support the potential to make the study analytically generalizable. Moreover, in accordance with Guba (1981), thick descriptive data has been assessed to increase transferability, the context of which this problem exist in has been broadly investigated, implying the potential for generalization. Furthermore, the process of attaining analytic generalizability is according to Yin (2010) a two-step process. The first step concerns

conceptual claims, in which the researcher shows how the findings may indicate something, e.g. a set of concepts and implications. The second step involves testing the theory in another setting in which it may be compatible. In this manner, the emergence of emission standards for HDVs, with the particular setting used in this study could contextually be generalizable and thus be transferable to other settings.

3.7 Ethical considerations

The study has been conducted in accordance with the Swedish Research Council's recommendations for good research practice. The sources used has been legitimate and well-established, both academic and empirically-wise. Sources directly from the targeted organization, whether it is the EU or one of the coalitions has been used to make sure the data is handled safely. In addition, all material has been treated consistently, and the research as well as analytical process has been outlined in detail.

3.8 Limitations

The study features a number of limitations, some of which have been mentioned in the section addressing the quality of the study. The role of the researcher cannot be emphasized enough, which is why I here would like to address the philosophical debate between positivism and interpretivism in research. The role of knowledge is paramount, yet, knowledge can derive from a number of points of departures and perspectives. The interpretivist approach is characterized by the view of the world as being shaped by individuals, whereas the positivist depicts individuals as shaped by the world. The interpretivist approach attempts to understand that world, through the experience and views of those who live in it, and does that through a pre-existing understanding. The approach is different to the positivist, which in short, aims to quantify the world and make statistical generalizations about how that world affect us (Atieno 2009). The choice of an interpretivist approach limits the research from being entirely free, and as previously mentioned makes the study a challenge to replicate. As far as generalizability is concerned, the above reasoning clarifies that the present study never can be generalized on the same terms as a positivist study would, which clearly is not the point, as explained in the quality reasoning.

The qualitative approach allowed, in accordance with the purpose to explore what underlines the formulation of environmental issues in a political economy, and an in-depth analysis of

actors that takes part of this process. An issue to consider in this regard is how the world we live in is broken down into concepts and ideas, making the analytical framework and all aspects important to clarify, as with all research. I addressed this limitation by reviewing previous research and suggestions, as well as thoroughly explaining the research process. Furthermore, the material for the study consist purely of texts, interviews would have been a good method to complement the texts. The rationale behind not doing interviews was explained in the material section and is indeed a limitation for the study. To address this flaw, as many sources as possible were used and triangulated, directly from the organizations own pages, in order to get as legitimate material as possible that is reflecting the views of the organizations. In addition, the time period of the thesis is 2009-2019, it cannot be ruled out that a longer time frame would have produced or helped us understand the problem in a more efficient manner. Yet, as mentioned in the introductory section, HDV emission standards were not up to debate until this point.

4 Results

This section follows the guidelines and structure of the ACF presented in the methodological section. The chapter begins with the shaping components of the framework before the subsystem and the emergence of the HDVs policy are presented through the lens of the coalitions.

4.1 Relatively stable parameters

4.1.1 Legal foundation

The current environmental programme of the EU goes under the pseudonym of “Living well, within the limits of our planet” (European Commission 2014). This document puts forth the environmental priorities of the EU. Structured thematically, the first objective is to conserve, enhance and protect the Union’s natural capital, the second, to develop a competitive, green and resource-efficient low carbon economy, and the third is to protect its citizens’ health and wellbeing from environmental-related issues (European Commission 2014). These priorities are complemented by a comprehensive policy-framework, which according to European Environment Agency (EEA) amounts to about 500 regulations, directives and decisions (EEA 2015).

The EU environmental policy can be visualised through several ‘dimensions’. The first stage is the 2020 targets, the second 2030 targets, third 2050 targets and EU on the international arena. These are the contours of how environmental protection is realized. The legal basis for this is expressed in the treaties. In Article 3 of the Treaty on European Union (TEU), the starting point, ‘Sustainable development’, determines that the EU is fully committed to protecting the environment (TEU 2016).

With Article 3 in the TEU as the foundation, the strategies and objectives described above are legally anchored in the Treaty of the Functioning of the European Union (TFEU). There are in particular two articles of importance. Article 11 states that environmental protection shall be incorporated in to all of the policies and activities, specifically with the ambition of advocating sustainable development. Article 191, settles the objectives for environmental policy, such as promoting action towards environmental issues, in particular climate change. The article also manifest that the EU shall strive for a high level of environmental protection. In doing so, principles of prevention, polluter pay and precaution shall act as the basis of operations, in order to rectify the problem at its source. Environmental protection shall in this context be harmonised. Article 191 further states that, the environmental policy-making process shall take technical and scientific data, the characteristics of regions, possible costs and benefits of actions or non-compliance, and social as well as economic progress in regions and the Union into consideration (TFEU 2012).

4.1.2 Key attributes and resources

According to the Commission, the EU’s environmental protection in the automotive industry focus on three parts; *reducing emissions*, stating that vehicles on the roads in the EU account for about 15% of the CO₂ emissions. Vehicles, in scope of the Commissions radar are light-duty, heavy-duty and non-road machinery, i.e. coaches, cars, buses, vans, trucks etc. *Noise reduction*, a priority of the Commission is to reduce the noise from vehicles. *Mobile air-conditioning systems*, referred to as (MACs), which gradually prohibits the use of certain gases, in order to reduce the emissions (European Commission 2019b).

Moreover, as specified in the introductory chapter, the attributes of the area under consideration are, to say the least, multiple and clearly intertwined. In a report, ordered by the Commission through the directorate general for environment (DG ENV), it is declared that motorized vehicles have a significant impact on the environment, mainly through GHG

emissions, but also in terms of energy, materials and waste. The combustion of fossil fuels does not only produce emissions affecting the environment, but also compose a significant threat towards the health of humans. In particular, such harmful gases include CO₂, NoX and PM's (European Commission 2019c).

Furthermore, another key attribute is the anxiety of the impact of regulations. A report prepared for the ACEA suggests that the automotive industry is disproportionately targeted by regulations, which can lead to competitive disadvantages as well as costs. Establishing stricter rules and standards may force the sector to target markets outside the boundaries of the EU, or in fact force the industries to direct more resources towards R&D (FTI Consulting 2015).

Resources characterizing the issue is mainly of; Research, technology and financial aspects, which are prerequisites as well as necessities concerning the present case. The policy-output regarding the area in concern is very much dependent on these resources (e.g. European Commission 2020a; ACEA 2016a; 2016b).

4.2 External Events

The financial crisis was a major event for the business side of this problem. Sizeable drops in sales, as well as turbulence in the world economy had great impact on the emergence of regulatory measures. In the time of crisis, governments are reluctant to introduce potential barriers (e.g. Burns & Tobin 2016). Furthermore, Burns and Tobin (2016) assert that the crisis led to radical changes in terms of strategy, turning the attention almost solemnly to economic objectives, which accordingly pushed the environmental ambition to the side.

Another external subsystem event (trend) to consider is increased awareness of environmental impact of human behaviour. According to a survey by the Eurobarometer, 94% of the sample for 2017 responded it was important to protect the environment (European Commission 2020b). The public opinion asserts a major influence on policy, a major reason for this is known to derive from the fact that policy-makers increase their chances of getting re-elected, or stay in office by listening to the public (e.g. Rasmussen et al. 2018).

Let us now move on to the 'Dieselgate'. In 2015, it was unravelled that the automaker Volkswagen had installed software that would notice when the car was tested for emissions,

and perform accordingly. Although it led to a major scandal, it was known since before by experts that this kind of manipulation was possible. It was amongst other things reported that 40% more CO₂ than during the tests potentially was emitted in Europe. In the aftermath of this event, organizations, stakeholders and policy-makers called for intensified regulatory measures to tighten the gaps and create coherent systems for monitoring and assessing emissions. In addition, the event sparked a debate between economists and engineers and scientists, the former advocating for an incentivized pursuit and penalties instead of enforcement of new standards (Zachariadis 2016).

4.3 Long-term coalition opportunities and short-term constraints

The opportunities for being active in the policy process is manifested by the White paper on the governance of the EU, the extensive amount of research on policy-participation as well as the number of organizations registered in the transparency register. The Alliance for Lobbying Transparency and Ethics Regulation (ALTER-EU) states that there is between 25 000 and 30 000 lobbyists targeting the EU institutions, most of them representing businesses (ALTER-EU 2019). The EU institutions organize multiple conferences, seminars and events every week, searching for views, best practices and opinions on how to tackle an issue. The EU also invites stakeholders to be a part of expert groups.

Moreover, in terms of cleavages, the environmental threats are central. Previous research suggested that the industry indeed has acknowledged environmental issues, but remain cautious. Nevertheless, there is a considerable consensus among European law-makers that there is a need for more environmental friendly transportation (European Commission 2019d). This view can be identified as established long ago, in 2001 the Commission presented a White paper on transports under the name ‘time to decide’. The white paper acknowledged harmful environmental impacts, as well as the need to develop long-term strategies for sustainable transports. It is mentioned that, heavy-duty vehicle transportation would increase considerably, proposing solutions that includes amongst others charging HDVs using certain infrastructure (European Commission 2001b).

In terms of short term constraints, both coalitions were affected by contemporary fluctuations in society. Yet, they were equipped with strong resources. Coalitions emphasize the importance of research and development as one of the main drivers for environmentally-

friendly HDV transportation. The financial crisis described above is a solid example of a short-term constraint, as the environment was put on hold, and the focus was solemnly economic. A contrary development seemingly evolved of the ‘diselgate’ crisis, which sharpened the focus on the environment, posing a constraint for automakers (e.g. ACEA 2010; 2012b; T&E 2010; 2016a; 2016b).

4.4 Policy Subsystem

Territorially, the subsystem in the present case exists within the boundaries of the EU, since it is an EU policy. The subsystem is specified by the topic of emissions from HDV, which is the subject. And those active in the subsystem are those who are influenced by, or influence the subject.

4.4.1 Substantive scope

Regarding emission standards, clarifying the difference between cars and vans, and heavy duty trucks is important. Firstly, the classification of standards differs in how they are presented. Light-duty vehicles (cars and vans) are labelled with Arabic numerals, whereas heavy-duty trucks are designated by roman numerals, e.g. Euro 6 for light-duty vehicles and Euro VI for heavy-duty trucks (e.g. Transport Policy 2018). In addition to that, defining ‘emissions’ is crucial, because there are multiple types of substances included. Such emissions are further clarified in the next section.

Let us start with the conceptual classification of emissions. The greenhouse gas (GHG), a collective notion of multiple substances that trap heat in the earth’s atmosphere. The gases that make up GHG’s are; Carbon Dioxide (CO2), Methane (CH4), Nitrous Oxide (N2O) and Fluorinated gases (e.g. EPA 2020). The European Environment Agency (EAA), acknowledges that vehicles emit multiple of such gases, which are presented below.

Table 3. Conceptualization of greenhouse gases (EEA 2016)

Gas	Emergence	Impact
Carbon Dioxide (CO2)	CO2: The primary gas emitted by fuel combustion.	CO2 has the most significant impact on climate change.
Hydrocarbons (HCs)	HCs: Emerge from partial or incomplete combustion.	Toxic. Contributes to the formation of smog and ground-level ozone.

Carbon Monoxide (CO)	CO: Emerges when the carbon fuels only partly oxides, i.e incomplete combustion.	Highly toxic. Contributes to the formation of smog and ground-level ozone.
Particulate Matter (PM)	PM: emerges from incomplete combustion. This is a mixture of directly emitted substances and gases that form in the atmosphere.	Highly toxic. Can cause lung and cardiovascular diseases.
Nitrogen Oxides (NOx)	NOx: A group of chemicals that forms out of a reaction with nitrogen. NOx emerge when fuel combusted with an engine meets air. In addition, NOx emissions lead to development of 'PM'. Diesel engines produce more NOx than petrol engines.	Highly toxic. Causes eutrophication and acidification of soils and waters. There is a several health problems associated with NOx.
Other Pollutants	There are several other substances emitted that is not yet incorporated in the EU's framework of emission standards. Substances as such include: NH3, SO2 etc. And various metals.	

Moreover, the EEA classify vehicle emissions into three categories. Firstly, exhaust emissions. These are emissions that mainly derives from the combustion of various sources of petroleum, e.g. diesel, petrol etc. Such fuels contain a mixture of HCs, CO₂ and nitrogen, however, substances emitted can vary because the type of fuel powering the engine. Secondly, abrasion emissions, these are emissions that emerge from the manufacturing process of vehicle components, containing a variety of PM emissions. And thirdly, evaporative emissions, these emissions emerge when vapours escape the fuel system, containing a variety of HCs emissions (e.g. EEA 2016).

4.4.2 Policy broker

The broker role in the conflict is the EU, notably, the European Commission who is responsible for legislative proposals. The Commission had, as mentioned above, HDVs, on

the radar, but had not yet made any proposals. The more environmental issues were brought to the political agenda, the more the conflict escalated, making it necessary for a legislative body with resources and power to mediate in the conflict to do so. The Commission held many consultations, hearings and had a close watch over the process, facilitated and listened to both coalitions (European Commission 2020a).

4.4.3 Stakeholders

There are a substantial number of interest groups represented in the EU. Gullberg (2008) stresses that stakeholders spend a considerable amount of resources on activities with the purpose of influencing decision-makers. The money and time invested in this process indicate that it is considered an efficient way to influence policy. Environmental interests have seemingly been successful in this area, most notably in setting the agenda, and in organizing themselves in their quest to safeguard the environment. So how do businesses engage in the issue of environmental policy? Zivin and Small (2005) have found a shift in business behaviour, claiming that if companies are rewarded when they improve their environmental work, they are likely to continue doing so. Studies that have investigated why companies adopt Corporate social responsibility (CSR), suggest two factors of importance: push (negative) and pull (positive) factors. These are factors that either confront or adopt policies (e.g. Szlávik et al. 2005; Paster 2018). Moreover, Cho et al. (2006) note that pressures, governmental as well as societal, make industries whose activities are ‘sensitive’ more likely to engage in environmental issues in a proactive manner.

Turning now to the stakeholders, considering first the automotive industry, which is a sector of fundamental importance for the EU. The industry provides 13.8 million jobs throughout Europe, a number representative of 6.1% of the total employment in the EU, and approximately represents 7% of the GDP. In terms of manufacturing, the automotive industry employs about 2.6 million people, equivalent to 8.5% of the manufacturing workforce in the EU. In the terms of vehicle production, the EU is one of the biggest producers in the world. In addition, the automotive industry account for the largest proportion of private investments in new technologies. Accordingly, the industry is regarded as vital for the prosperity of the continent (European Commission 2019a). Characterized by multinational corporations, many of which originate from Europe, the industry forms what is known as the European Automobile Manufacturers’ Association (ACEA).

Furthermore, there is an abundance of environmental NGO's in the EU, with notables such as the Green 10, the European Environmental Bureau and Transport and Environment (T&E). These organizations are intertwined and collaborate over policy issues regarding the environment. The latter organization speaks for, and represents, the environmental interests in relation to transportation in the union. The T&E consist itself of 60 member organizations and represents over 3.5 million people (e.g. EBB 2018; T&E; 2020b).

4.4.3.1 Coalition 1 – The ACEA

The ACEA is an organization of European truck, van, car and bus manufacturers. Consisting of 16 major companies, the ACEA (2020a), including amongst others BMW Group, Volkswagen Group, Volvo Group and Daimler to mention a few. The organization primarily work towards the European Union and is regarded as the main group of the auto-industry. Working in a multifaceted way, the ACEA targets a variety of areas such as institutions, research and civil society groups, NGO's and similar advocacies with related agendas. The organization also cooperates with the European Council for Automotive Research and Development (EUCAR), and has connections to national automotive associations around Europe.

The ACEA serves the common interests of European Automakers, advocating as a unified voice for the sector in policy discussions. According to the ACEA (2020b), the automotive sector is one of the most regulated in Europe, producing incentives for a coherent strategic platform to face challenges in terms of sustainability, competitiveness and mobility at a global market. The organization also strives to promote as well as monitor the importance of the automotive sector in Europe and beyond.

The regulatory framework encircling the industry is characterized by technicalities. Highlighting seven prioritized fields, the ACEA (2020b) focus on: Transport Policy, Safety, Connected and Automated Driving, International Trade, Competitiveness, Market and Economy, Research and Innovation, and, Environment and Sustainability. For the scope of this study, the three latter fields mentioned are of certain interest and will be presented briefly below.

The ACEA (2020c) state that the sector is a crucial component of the economy, and support the EU's actions for economic growth. Yet, emphasizing that the industry face unprecedented

challenges that go beyond pure manufacturing. According to the organization, the primary concern derives from a transition caused by new business models arising across the world, shifting the economic centre to the east. Moreover, as previously mentioned, the sector is subject to 28% of EU's total investments in R&D. The ACEA (2020d) asserts that more than half of the patents in the auto-sector derive from the EU. The process of such a development is characterized by solid partnerships with stakeholders, such as the EUCAR. Furthermore, the R&D is subject to a series of measures before being put to the market. The process of putting new technology in vehicles is defined by long-term and strategic phases such as monitoring, calculations and testing. Notably, sustainability requirements compose significant challenges as well as incentives for the industry.

The ACEA highlights the EUCAR project as vital. One of the main roles of this EUCAR is to establish and promote common frameworks for, among other things, new fuel standards. The project aims to bring stakeholders together to assemble momentum in terms of swift and smooth implementation of new innovations. According to EUCAR, the joint forces of their members generate investments of over 53 billion Euros each year. The project lies within the EU's Horizon programmes (EUCAR 2020a; 2020b). Furthermore, the ACEA (2020e) asserts that sustainable and environmentally-friendly mobility is not just a general ambition, but one of the primary ambitions of the industry. The ACEA states that the sector is aware of its role, but notes that the issue is multifaceted and requires more than technological advancements in terms of fuels, e.g. focus on air quality, CO₂ emissions, alternative fuels, noise and materials.

4.4.3.2 Coalition 2 – The T&E

The Transport and Environment, (T&E) focus solemnly on transports, and contend that they have been successful in advocating for the EU's world leading CO₂ standards for vehicles. Being a politically independent NGO, the T&E base their pursuit for environmentally sustainable transports on a combination of knowledge and understanding of transports and science. The organization was founded in 1990 when multiple NGO's realized the need for a stronger organization. Important stepping stones in their work so far includes, warning auto manufacturers of manipulation of tests in 1998, mentioning the 'dieselgate' cheating. Another important event includes working on promoting the polluter pay principle, which amongst other things led to the first law charging trucks. Moreover, T&E focus specifically on 'turning the tide' when it comes to the CO₂ debate and the introduction of standards (T&E 2019).

The T&E occupies a membership in multiple expert groups, notably, the group for policy implementation and development of CO₂ from HDVs. In their annual report for 2019, the T&E assert that 2019 was their most successful year to date, highlighting the EU's decision to regulate HDVs. Moreover, the organization coordinates its work into all areas where transports (ships, cars, airplanes, trucks, energy and finance) can be linked to the environment. Having millions of views, clicks and impressions, the organization highlights the importance of social media platforms. The organization further claims that technology is the primary factor expecting to drive the change towards zero-emissions, notably by better fuel efficiency and battery technologies (T&E 2019).

As a member of the Green 10, the T&E shares the ambition of ensuring that environmental consequences are considered in the formulation of EU-policies. Ensuring 'clean' transports in Europe was one of the main fields in the Green 10's manifesto for the leaders of Europe in connection to the recent election in 2019 (Green 10 2019). Furthermore, the T&E headlines their campaign on trucks, (in which HDVs is included) as 'cleaner, safer trucks'. While highlighting its significance for the global warming, the usage of trucks is projected to grow by approximately 56% until 2050. The primary focus in this regard lies on CO₂ emissions and the new standard, which is up for revision in 2022.

4.5 The emergence of the HDVs policy

This section describes the gradual emergence of the policy from utterances and actions of the two coalitions during the period 2009-2019. The aim of this treatment is to identify the key aspects and features in the process, all in order to determine the particular beliefs of the two parties. The period of investigation is in turn divided into a number of sub-periods, as was declared in the methodological section. Also, a short introduction to the state of the problem is given before each period.

4.5.1 State of the problem 2009-2011

This period was heavily influenced by the ongoing financial crisis. In terms of emission standards, HDVs were not yet included in the debate, although there was a general discussion of the impact of transportation on the environment. During this period, regulatory talks targeted primarily cars.

4.5.2 ACEA 2009 – 2011

In their 2009 brochure ‘Cars, Trucks & the Environment’ (ACEA 2009a), the ACEA assert that the automotive industry is invaluable for the economy, proclaiming it the ‘engine of Europe’. The organization itself is also sizeable, representing by its members, no less than 30% of manufactured vehicles in the world. In addition, it is acknowledged to be a heavily regulated sector, and a major source of tax revenues. The ACEA emphasize the importance of the sector, putting the focus on their important role for the European economy. They also express the fact that the automotive industry is highly technological, but that technology alone cannot be the single driver behind the reduction of emissions. The problem, from their point of view, is that the industry is disproportionately targeted by regulations, which is due to the general opinion that vehicles of transportation are harmful for the environment. To counter this view, the ACEA (2010) point out that their commodities are full of technology that can lead the way, but not all the way.

“The transport sector accounts for roughly a quarter of total CO₂ emissions from fuel combustion, but absolute CO₂ emissions should not be the primary basis for selecting abatement measures in an economy” (ACEA 2009b, p. 1)

Furthermore, reducing CO₂ has a central position in terms of innovation. The ACEA predict the future success of the industry by using key words and phrases such as *efficiency, public and consumer choices, cooperation, and the removal of barriers for new technologies and market incentives*. In their pocket guides for the years in this period (ACEA 2010; 2011), it is mentioned that one of their priorities is to reduce what they see as an over-regulation of the sector. To bolster their arguments, they further stress that their members are leaders in environmental technologies, referring to the significant reduction of emissions from HDVs during the last 20 years (ACEA 2009b).

The ACEA provides technical information on how the sector has evolved, mentioning considerable reduction of emitted PMs and NoX gases. They argue that these technologies have to be given time, calling for a collaborative policy-making process. While advocating such an integrated approach, the ACEA acknowledges that they are not alone in driving the change towards more sustainable and environmentally-friendly transports. Yet, they demand more realistic and effective regulations that can take European social and economic interests into consideration. In this process, the ACEA prefer a close dialogue with policy makers, with key notions such as incentives, taxation and infrastructure (ACEA 2009b; 2010; 2011).

4.5.3 The T&E 2009-2011

The overall goal of the T&E is to reduce harmful impacts on the environment, following the principles of sustainable development (T&E 2010a). In a response to the Commission on the future of transports, the T&E (2009) argue that GHGs should be seen as a primary area for future policies. In this endeavour, great emphasis is placed on the process of decarbonisation, a field in which the T&E states the Commissions work is too vague. Their impression is that the Commissions treat environmental issues as an afterthought of transportation policies, and that this state of affairs should be changed as soon as possible. Rather, they claim environmental and climate issues should take centre stage in this context (T&E 2009).

Not unexpectedly, the T&E acknowledge the importance of justice and equality for the well-being of the environment. When action is taken, it must be with sustainability at its core:

“The truth is that EU transport policies have always aimed at increasing the efficiency of transport, through opening of borders, common administrative procedures, and liberalisation of markets. This approach has often common into direct conflict with environmental concerns.” (T&E 2009, p.3)

The T&E (2009) also state that a large automotive market is not wrong, but that the current effects of it tend to ‘choke’ Europe. Thus, there is a need for efforts of regulations to limit these harmful emissions. It is pointed out that regulatory measures to decarbonise transports is an investment, describing them as incentives to new innovations, and as a step towards creating more work opportunities. To support their arguments, the organisation presents a lot of research from a variety of different fields, trying to strengthen the empirical foundation of their position.

Finally, the economic side of the coin should not be forgotten. The principle ‘the polluter pays’ is an important part of the argumentation by the T&E, in particular if it can be made to affect HDVs proportionately. In this connection, they also call for better pricing of road usage, more strict kilometre charges and increased fuel taxation (T&E 2009; 2010b; 2011; 2012). Additionally, the T&E (2012) note that HDVs, seem to be half empty, approximately 50% of the driving time, an observation that calls for a focus on efficiency rather than size.

4.5.4 State of the problem 2012-2013

As with the previous period, the ongoing financial crisis had a central role in European politics, leading to a focus on financial recovery. The CO₂ debate was concentrated primarily to cars, however, the intensified acknowledgement of the environment in general increased the pressure for the Commission to take action.

4.5.5 ACEA 2012-2013

Similar to the previous period, the ACEA highlight the automotive sector as the ‘engine of Europe’. Asserting that European transportation is highly innovative, the members of the organization are proclaimed global forces in the process of reducing CO₂ emissions, yet, maintaining, and even boosting the competitiveness is considered decisive for this development. The ACEA further stress that European trucks are quietest, cleanest and safest in the world, to continue on such a success, the Commission has to maintain an open and well-functioning market (ACEA 2012a; 2013a).

Furthermore, the organization highlights a number of fields in which progress has been made. Emissions from HDVs is said to be down by a substantial number compared to the 1990-levels. In order to continue to reduce the impact of road-transportation, the ACEA calls for a flexible, yet stable regulatory foundation that support the adaptation of new technologies. In this process, the automotive industry supports a ‘performance-based’ procedure, in which the Commission should make available funds (ACEA 2012b; 2013b).

4.5.6 The T&E 2012-2013

The T&E begin their annual review in the following way: “Our task as environmentalists is to convince people that getting out of the economic and resource/climate crises are two sides of the same coin.” (T&E 2013a, p.4). The T&E manifest their commitment in the process making HDV transportation less harmful for the environment. In their quest for a ‘green revolution’, the organization acknowledge that Europe face a considerable challenge in the form of energy and labour costs being higher than in American and Asia respectively, notably, because of the view of efficiency as the key feature of a such development. The T&E also claim that the EU has to become serious about reducing the environmental impact of transports (T&E 2013a; 2014a).

In the process of advocating for reduced emissions and cleaner trucks in general, the T&E highlight the potential of economic incentives. And yet again, it is emphasized that trucks are disproportionately regulated, representing such a small percent of road transports, yet representing a considerably larger proportion of emissions (T&E 2013a). While, expressing dissatisfaction of the lack of regulations, the potential for a future emission standard is highlighted as a measure to consider. The T&E (2014) also point out that CO₂ tests are now being carried out. Emphasizing efficiency instead of size, the organization present data that indicate that smaller vehicles would be more efficient for the environment, yet, also suggest charging for the use of infrastructure as a means of reducing CO₂ emissions (T&E 2013b).

4.5.7 State of the problem 2014-2015

Having launched a new standard for cars, the Commission presented a strategy for fuel consumption and CO₂ emissions for HDVs, leading to an intensified and more detailed focus on HDVs. In addition, this period was characterized by the disclosure of ‘dieseltgate’, leading to the European Parliament requesting the Commission to present a legislative proposal (European Parliament 2020).

4.5.8 ACEA 2014-2015

The ACEA (2014a) underline that European automakers has managed to lower CO₂ emissions considerably, which is due to an improved fuel consumption, and thus being capable of transporting higher load weight. A considerable increase in position papers (e.g. ACEA 2014b; 2014c; 2014d), signifies that environmental issues are challenging for the automakers. To bolster their arguments, the organization put forth a manifesto for competitiveness, highlighting the collaborative approach through platforms such as the EUCAR and Horizon programmes. In this endeavour, the Commission will have to foster a competitive atmosphere, in which adaptation of new technologies and best practices can be established. It is further mentioned that such a process would benefit from the removal of importation and exportation barriers, as well as better aligned policies in general. While advocating for such an approach, the automotive sector demand reasonable transition periods in the case of new regulations, emphasizing also the benefit of rules being compatible with the rest of the world. The ACEA also assert that without transports, there would not be any prosperity (ACEA 2014b; 2014c).

Furthermore, the ACEA (2014c) support measures that include CO₂ taxation on the use of vehicles, yet, urge the Commission to base future policies to derive from cost-efficient approaches. Being realistic is put forth as a key word, in particular when it comes to demands on the market (ACEA 2014d).

“External factors which strongly influence demand for cleaner vehicles should be promoted, such as access to alternative fuels and reliable and functioning charging points, level of fuel and vehicle taxation, oil price, fleet renewal incentives etc.” (ACEA 2014d, p. 3).

4.5.9 The T&E 2014-2015

Similar to the ACEA, the T&E have intensified their production of position papers (e.g. T&E 2014b; 2016a). Referring now to the automakers as a group of resistant industry lobbyists, the T&E (2015) acknowledge a more technical focus in their quest of making HDV transportation more sustainable. While the Euro-standards for light-duty vehicles have kept getting tighter, HDVs keep going under the radar. However, the organization stresses that such tests are now on the way. Using the ‘dieselgate’ to support their arguments, the T&E seemingly regard the automakers as a major part of the challenge of reducing the environmental impact of transportation. In this endeavour, the crisis is regarded as significant for their cause (T&E 2015; 2016a).

While continuing to emphasize the lack of regulations, the T&E present data indicating no improvement in terms of efficiency by fuel consumption. The Commission is once more encouraged to establish a standard. In this connection, the organization express that they have begun talks with manufacturers to encourage competitiveness in order to improve the fuel economy (T&E 2016a). Furthermore, the organization claims success in the debate of ‘megatrucks’, who they point is very polluting. Describing that they directed focus towards aerodynamics and efficiency instead of size and engine efficiency (T&E 2015).

“But attack is always the best defence; therefore our line quickly became: we want trucks better, not bigger. We set about convincing people that the key problem of trucks is not that they can’t carry enough load, but that their cabin is too short.” (T&E 2015).

In their quest for reducing CO₂ emissions, the T&E call for a more aligned environmental framework, to increase the potential for uptake of new technologies. In

this connection, the organization maintains that the EU's approach is too vague, highlighting both environmental and economic pitfalls (T&E 2014b).

4.5.10 State of the problem 2016-2017

Pressured, the Commission announced in July 2016, that CO₂ from HDVs was subject to be regulated. In addition, the European parliament presented a resolution, once again calling for the Commission to take action. In the clean mobility package, it was announced by the Commission that the process of establishing a reporting and monitoring system for fuel consumption and CO₂ had begun (European Parliament 2020).

4.5.11 ACEA 2016-2017

In the foreword to their yearly pocket guide, the ACEA announce that the automotive industry is committed towards facing tomorrow's challenges. Now mentioning cleaner mobility more often, the organization points out that the EU must support a collaborative approach in the process of developing more environmentally-friendly HDVs. In this connection, the EUCAR project is seen as vital. Having intensified their technical output, the ACEA emphasize the need for market based solutions, especially as Europe only account for approximately 15% of new registrations of HDVs in the world (ACEA 2016a).

In a position paper on the reduction of CO₂ emissions from HDVs, the ACEA (2016b) underlines that the sector is a cornerstone of the European society and a global leader of competition, and thus contributes significantly to the European economy. A key phase in their argumentation is that vehicles alone should not be considered as the only source of CO₂ in Europe. While highlighting the CO₂ problem as an issue characterized by multiple factors, the organization stress that the process of reducing CO₂ emissions must be based on market forces, in particular in the area of fuel efficiency (ACEA 2016b).

“Combined with the integrated approach, ACEA supports the development of an EU-funded standardised simulation tool to certify the fuel efficiency of complete heavy-duty vehicles and vehicle combinations.” (ACEA 2016b, p.2).

Furthermore, accompanying the proposed market driven solutions, the ACEA suggest the process of improving fuel efficiency must be monitored safely by a solid test method, referred

to as the Vehicle Energy Consumption Calculation Tool (VECTO) (ACEA 2016b). However, meanwhile VECTO is considered, the automakers express concerns of the potential of disclose innovations, confidential and sensitive data, which from their point of view would pose a competitive disadvantage (ACEA 2016c).

4.5.12 The T&E 2016-2017

In their 2016 annual report, the T&E (2017) begin with stating that transports are Europe's most significant climate issue. While on the other hand, acknowledging the importance of HDVs for the European well-being and economy, it is also pointed out that they are a destructive force in terms of the environment (T&E 2018a). In the process of doing so, the organization express more and more frustration towards the automotive industry:

“But despite a constant flow of new Dieselgate revelations, the signing of the Paris climate agreement, and the rise of disruptive new electric vehicle manufacturers, most of Europe's auto industry – with the help of their oil industry allies – continues to try to delay the shift to more efficient and electric vehicles.” (T&E 2017, p. 4)

The T&E continues to emphasize the lack of regulations for HDVs emissions, and, proclaims it their mission to demonstrate the potential of reduced CO2 emissions. Highlighting their presence at the governmental level, the T&E have begun pressure government officials, with utterances emphasizing an insufficient performance of the auto industry. In this connection, the organization also published a critique of a ACEA report (T&E 2016b), while also pointing out that new technologies had been delayed. This caused some of the HDV manufacturers a fine of nearly three billion Euros for cartel-like activities, which according to the T&E lead to the Commission finally taking action (T&E 2017).

The T&E signifies dissatisfaction with the delay of 'VECTO', while pointing out that the development of the mechanism was started in 2010 (T&E 2016c). Additionally, they claim the tool seemingly pose a challenge for HDV buyers, because the industry has kept delaying advancements in fuel efficiency. To bolster their arguments, the organization highlight the potential of an emission standard, improved fuel economy and increased charging as the most promising in the process of reducing CO2 emissions (T&E 2016d).

4.5.13 State of the problem 2018-2019

In May 2018, the Commission presented a proposal for regulating CO₂ emissions, by establishing a standard for HDVs, manifesting the area as part of the EU's priorities. The proposal includes CO₂ targets of a 15% reduction 2025 from 2019, and a reduction of 30% by 2030 compared to the 2019 level. In the regulatory process, the parliament called for higher targets but were held back by the Council who settled with the targets proposed by the Commission. The regulation is scheduled to a review of the targets in 2022. The act was finalized in June 2019 and entered into force in August 2019 (European Parliament 2020).

4.5.14 ACEA 2018-2019

Expressing anxiety over competitiveness at the global level, the ACEA called for the EU to safeguard the well-being of the industry. In doing so, they also emphasized their commitment to the environment, highlighting data of vehicles that indicate a considerable reduction of CO₂ emissions. Consistent with previous periods, the ACEA advocates for an integrated approach, pointing out that EUCAR, and projects funded by the Horizon programmes as imperative in the process of making transport more environmentally-friendly (ACEA 2018a). In this connection, the automotive sector represents 28% of all investments on innovations in the EU (ACEA 2019).

In their position paper on the Commission's proposal for CO₂ standards, the organization assert their members have achieved significant progress on reducing CO₂ emissions from HDVs, while also remaining committed in doing so in the future. Yet, at the same time, repeating that a regulation must be realistic, taking the market into consideration as well as including a mechanism that allows for the CO₂ targets to be adjusted (ACEA 2018b).

“Europe's truck manufacturers are willing to commit to an ambitious 2025 CO₂ target, provided that the required reduction is realistic and in line with what is technologically possible and economically viable. In order not to distort this complex market, the future framework should provide enough flexibility and the right enabling conditions to make sure that the CO₂ targets are also deliverable in practice.” (ACEA 2018b, p. 12).

Furthermore, while their commitment to the target seem to be confirmed, the ACEA express concerns over the impact of the regulation, and would have preferred more market mechanisms as the primary measures in reducing CO₂. Yet, the organization support introducing incentives, in particular for alternative fuels. However, these incentives seemingly

include a cap, which according to the ACEA potentially could hinder a wider deployment of HDVs, with low or zero-emission techniques. Moreover, expressing anxiety, the ACEA note that the severity of the proposed penalties of non-compliance (not reaching the targets) are too high. While arguing for more realistic penalties, they called for them to proportionately reflect the cost of the innovations behind the performance of the HDV. However, it should be noted that the organization does not reject the penalties (ACEA 2018b).

In 2019, the ACEA published a manifesto for the future of the industry, arguing that the industry now faced unprecedented threats. In doing so, they also uttered that the confidence of the sector had been severely shaken, as new trends and technologies are redefining road transportation. The shift of economic gravity towards Asia has introduced new business models, posing big challenges for the automotive sector in Europe. To counter this development, the organization assert that they are fully committed to work with policy-makers in order to turn the situation around, meanwhile also making Europe the frontrunner of road transportation (ACEA 2018c).

4.5.15 The T&E 2018-2019

Stating that there is a war in Europe, the T&E have become increasingly vivid in their statements on how HDVs impact the environment, picturing the HDV manufacturers as ‘villains’. The organization make clear that the environment must be considered at the core of EU-policies, or face the risk of falling behind to the US and China. To bolster their arguments, the T&E assert that many MNE’s have joined their quest for more efficient CO2 targets (T&E 2019). In their reply to the Commission proposal for establishing a CO2 standard for HDVs, the T&E (2018b) assert that any voluntary measure will be exploited, calling for a strict standard and a well-established monitoring system.

“German and European truck lobby groups spent much of 2018 urging EU lawmakers to weaken the planned emission reduction targets so they can keep selling even dirtier diesel lorries for another decade and as few electric trucks as possible.” (T&E 2019, p.9).

The T&E (2018b) argue that any measure considering the views of the auto manufacturers will be bad for both the environment and development of the fuel economy. Seemingly successful in their advocacy for a CO2 regulation, claiming 2019 had been the culmination of T&E’s work, notably by the launch of the HDV emission standard policy.

Similar to ACEA, the T&E also published a report on the future of transports, addressing the EU 2050 strategy. In doing so, the organization uttered concerns over the econometric models deployed by the Commission, composing numerous scenarios for CO₂ emissions. In this regard, the T&E (2018) affirmed that the models were biased, emphasizing that most truck manufacturers had announced a plan to begin large-scale production of electric vehicles.

5 Analysis and discussion

Having looked at the results of the present study, it is now time to analyse and discuss their various implications. As part of this endeavour, a table of the different time periods will be constructed, through which the belief systems involved can be determined. Then follows a discussion of some relevant aspects concerning policy-oriented learning, the policy subsystem and the shaping factors of the ACF.

5.1 Belief systems analysis

As already touched upon, studying the second order narrative in this context shows how the coalitions involved have perceived the regulation of HDV emissions over time. In particular, the data, summarized in Table 4 below, show the deep core beliefs of the coalitions as well as their policy core beliefs and secondary beliefs as they apply to the specified time periods. This material is based on the content of section 4.5, i.e. the emergence of the HDV policy, featuring key aspects of the political philosophies that were described in the methodology section.

Obviously, the debate on HDV emissions intensified over time, most notably in 2015. Up until then, the main goal of the ACEA was apparently to press for deregulation of the automotive sector, as well as to emphasize its important role for the European economy. Measures from the industry to reduce the environmental impact from their commodities were focused on the users rather than the producers, which can be considered a trend throughout the whole investigated period. Yet, after 2015, a more defensive stance was taken by the ACEA, acknowledging the importance of the environment to a much higher degree than before, in particular as to how the industry worked and what they had accomplished in terms of environmental concerns. Their deep core beliefs were characterized by a liberal political

philosophy, which seems to have been the trend throughout all periods. Yet, the anxiety over regulations and barriers, in particular such relating to competitiveness and markets outside the EU, induced elements of conservatism. The policy core beliefs also appeared to be consistent throughout the investigated period, as they first and foremost advocated measures to keep the industry competitive. As such, the deep core beliefs and policy core beliefs of the ACEA can be said to be consistent with the assumption that these beliefs are hard to change.

As for the secondary beliefs, a change in the ACEA's approach over time can be identified. Prior to 2015, the ACEA pressed for measures that would stimulate the economy in Europe, with much focus placed on market-based incentives and rules for the usage of HDVs. As is commonly known, this changed dramatically when the 'dieseldgate' scandal shook the industry, leading to an intensified debate on the environmental impact of vehicle transportation, including HDVs. More recently, it has turned out that the ACEA still put focus on the usage of HDVs, yet commit themselves to more environmental action. Thus, there has been a strong readiness to engage in environmental issues collaboratively, in particular through the EUCAR project funded by the EU. Also, in the last two periods, more specific opinions relating to drafts of the policy were expressed, these include the designing vehicle emissions tests, providing specific technical data and suggestions on how to handle such data. In this process, the ACEA also welcomed incentivised actions for users, including aspects of fuel efficiency and economy. Yet, they maintained their position in opposing penalties that would fall on the manufacturers if the HDVs could not meet the required standards.

In contrast to this, prior to 2015, clearly a key year for road transports in Europe, the T&E made the general statement that the automotive industry was simply under-regulated. The organization emphasized that the EU must adopt a sustainability thinking at the core of their policies. Similar to the ACEA, the T&E identified the usage of HDVs as a primary area where the policy would have good potential to reduce emissions, while also providing measures for taxation, pricing and various charges for the use of relevant infrastructure. Their deep core beliefs are rooted in 'green ideology' and are consistently subscribed to throughout the investigated period, thus putting concerns of the environment at the centre of all actions. These deep core beliefs are translated into policy core beliefs by maintaining a pressure on lawmakers to consider sustainability at the core of all policy-making. Measures by the T&E on this matter include actions against weak regulations not targeting the industry proportionately, which can be seen as a stable trend throughout all periods. By 2015, the

organization became more involved in the political discussion and thereby managed to put more pressure on both the Commission and the automotive industry. At the same time, their way of expression became more vivid, and the industry was sometimes portrayed as a ‘reluctant villain’. Furthermore, before the 2014-2015 period, it may be noted that the T&E used similar phrases in connection with the ACEA and their secondary belief level when they stamped the usage of HDVs as a problematic area, and also suggested similar solutions conditioned by dire market-based mechanisms and incentives. However, from 2015 and onwards, this belief level came to include demands of emission standards, i.e. measures that directly targeted the producers. In this, the T&E stressed that technologies for more sustainable HDV transportation already existed, and that it was simply for the Commission to implement measures that could put these technologies on the market, primarily such relating to fuel efficiency, infrastructure and the monitoring of new products.

On the whole, it can be concluded that there are certain trends that can be attributed to both coalitions. These include belief systems that follow the rationale in the ACF as well as consistent deep core and policy core beliefs at the present level of conflict. On other hand, more fluctuations can be seen at the secondary belief level, where specific interests and preferences prevail. In particular, the 2014-2015 period stands out in this context, as this was the time when the debate was intensified, much due to the influence of external events such as the ‘dieselgate’. Both coalitions utilized strategies well aligned with their beliefs here, the ACEA drawing on considerably lower emissions from HDVs as well as technologies which could be implemented by user incentives. The T&E, in their turn, highlighted the opposite position, taking advantage of the growing environmental discussion to put pressure on the Commission. The ‘dieselgate’ event is of course more than likely to have increased the success of the advocacy of the environmental side, not least since the automotive side admitted that their confidence had taken a blow by the end of the investigated period.

Table 4. The belief systems of the two coalitions

	<i>The European Federation of Transport and Environment (T&E)</i>	<i>The European Automobile Manufacturers Association (ACEA)</i>
2009-2011	Deep core beliefs: The T&E acknowledge the importance of justice and equality in taking care of the environment, a description that features key concepts from liberalism	Deep core beliefs: The ACEA establish the general importance of the industry. This is done through a type of reasoning that is compatible with liberal deep core values. They put considerable focus on

	and socialism. The main aim is to harmonize these aspects with the needs of the environment, which indicates deep core beliefs coherent with a green ideology.	competitiveness, market conditions and justice.
	Policy core beliefs: The T&E stress that Europe is ‘choking’. The organization emphasize the need for regulations in order to limit emissions. Such regulation is considered an investment.	Policy core beliefs: The ACEA claim that the issue is best handled by improving HDV efficiency, providing market incentives and by removing barriers. The organization consider themselves as an over-regulated sector.
	Secondary beliefs: The T&E affirm the ‘polluter pays’ principle, stating that it does not proportionately affect HDVs. They call for better pricing, kilometre charges and taxation for the usage of HDVs.	Secondary beliefs: The ACEA maintain that current HDVs emit a lot less than before. They suggest an integrated approach, with a dialogue over incentives, taxation and infrastructure.
2012-2013	Deep core beliefs: The T&E are consistent with their deep core beliefs. They continue with a liberal terminology in their pursuit for a ‘green revolution’.	Deep core beliefs: The ACEA maintain their deep core beliefs. Yet, a conservative reasoning can be identified, as they want to preserve the European market.
	Policy core beliefs: Sustainability is regarded as the platform that an emission standards policy must derive from. HDVs are considered not to be proportionately regulated.	Policy core beliefs: Increased worries are expressed over competitiveness. They call for a more flexible regulatory foundation.
	Secondary beliefs: The T&E are consistent with previous ideas, calling for a better taxation and charging system. In addition, they put a clearer focus on efficiency at the expense of size, calling for smaller vehicles.	Secondary beliefs: The ACEA continues to emphasize the importance of the market. They make a case for performance-based measures and the possibility of funding by the Commission.
2014-2015	Deep core beliefs: The values driving the T&E derive from ‘green ideology’, as in the previous periods. Yet, they consistently regard the market as the venue for driving change.	Deep core beliefs: Liberal values seemingly dominates the actions taken by the ACEA. Yet, more conservative arguments are detectable as well, for example that the industry is regarded as fragile, more protection is needed for the sector and that the market is still paramount.
	Policy core beliefs: The T&E regards the automakers as increasingly reluctant, and the Commission as weak. Consistent with previous periods, they see the need of regulation as central to their urge for sustainable transports.	Policy core beliefs: The key word in ACEA’s work is competitiveness. They call for deregulation, removal of barriers and better aligned policies. If more regulations are introduced, they should mild and have long transition periods in-between.

	Secondary beliefs: The T&E call explicitly for the establishment of new emission standards for HDVs and new measures to stimulate fuel economy. They argue for a more aligned framework allowing the uptake of new technologies.	Secondary beliefs: The ACEA propose a more cost-efficient approach where taxation of ownership is welcomed. Yet, realistic assessments have to be made that take the demand for HDVs into consideration.
2016-2017	Deep core beliefs: The T&E adhere to their green ideology. They assert that emissions from transport are the biggest problem in Europe.	Deep core beliefs: The ACEA are consistent with their liberal approach. Yet, the environment is acknowledged to a higher extent.
	Policy core beliefs: They are consistent in their pursuit to incorporate sustainability in the core of the EU road transport policies. The lack of HDV regulations are once again key.	Policy core beliefs: The ACEA state that they are committed to face tomorrow's challenges. Yet, they call for measures to increase competitiveness, claiming that a reduction of CO2 must come from market forces.
	Secondary beliefs: The T&E stress that emission standards for HDVs must be monitored carefully and demand transparency. In addition, rules linked to fuel efficiency must be established. They continue to call for intensified charges for trucks.	Secondary beliefs: The importance of fuel economy is emphasized as well as cooperative efforts, in particular through the EUCAR project. New emission standards for HDVs must be monitored safely, specifically to protect sensitive information.
2018-2019	Deep core beliefs: The T&E maintain their position in their pursuit for a new regulatory policy.	Deep core beliefs: The ACEA stick to their previous liberal values. Yet, an increased anxiety on their part indicates remaining conservative values.
	Policy core beliefs: The organization keep emphasizing the need for sustainability at the core of policies. They stress that HDVs in the EU would benefit from a sustainable perspective in competing with the rest of the world.	Policy core beliefs: The ACEA demand protection of the European industry. A new HDV emission standards policy must be based on market mechanisms. Calls are made for better cooperation to save the automotive industry.
	Secondary beliefs: The T & E emphasize the urgent need for ambitious and strict standards. Any voluntary measure would have to be exploited. Fuel efficiency measures must be based on relevant data and strict rules.	Secondary beliefs: The ACEA see the proposed penalties for manufacturers in the policy as too high, arguing that the situation must be assessed realistically. They welcome incentives for alternative fuels, and assert that the cap on incentives must be removed in order to inspire a wider deployment of HDVs with low or zero-emission technology.

5.2 Policy-oriented learning

Reflecting the assumptions of the ACF, the deep core beliefs and policy core beliefs have clearly proven difficult to change. As indicated in Table 4, the T&E's deep core beliefs are

firmly rooted in green ideology, whereas those of the ACEA exhibit a more liberal character, although interspersed with some conservative thinking. Their respective safeguarding of interests, as disclosed by the belief system analysis performed, indicate that the two parties were in almost constant conflict with each other, as illustrated, for example, by the increasingly harsh formulations provided by the T&E in describing some of the actions of the ACEA. What is in particular interesting is how the problem has come to grow over the years, partly as a reflection of certain external events, something which highlights the potential of such events feeding into a policy conflict. The financial crisis gave the automotive industry some breathing-space in their resistance to regulations, saving them from having to act differently. Due to the crisis, however, the environmental movement also grew as a trend in society, and the ‘dieselpgate’ events are likely to have fuelled the debate further. This seems to have created a paradoxical situation, with one coalition being increasingly resistant and defensive, i.e. the ACEA, and another becoming increasingly impatient and frustrated, i.e. the T&E.

On the secondary belief stage, the emergence of the regulatory policy indicates that learning actually took place, at least to some extent. The conflict can be described as intermediate, as neither of the coalitions faced threats that would endanger their existence; yet, the problem was clearly too big to be ignored, an observation which is thus consistent with the ‘inverted quadratic’ described by Nohrstedt et al. (2017). Still, it is interesting to note that the T&E initially targeted the design of HDVs in their efforts to reduce CO₂ emissions, while, later on, they turned their focus on the combustion process as such. According to the assumption of the ACF, this would imply a low level of conflict. But as mentioned above, there is strong evidence that the conflict escalated over time, with both coalitions increasing their argumentative output significantly. Having originally been portrayed as an environmental ‘villain’, the ACEA gradually committed themselves to more ambitious CO₂ reductions, a view of the situation that poses as a reasonable solution, suggesting a shift at the secondary belief stage. It also implies that policy-oriented learning took place, at least over the period of investigation. However, by carefully assessing their position and suggestions vis-à-vis the regulation, one can establish that the beliefs have been more or less stable throughout the process, i.e. they form a pattern that reflects the deep core and policy core beliefs to a high extent. Accordingly, a good way to describe the situation is to refer to the noticeable shift representing a sort of ‘damage control’.

Thus, the ACEA's shifting stance towards acknowledging the environment points towards a case of learning. However, it is likely that this shift is a part of their strategy, as environmental concerns became more topical during the period, and thus made it to most political agendas. At the same time, a clear shift of attention can also be noted in T&E's behaviour, as they showed more signs of recognizing the importance of HDVs and the role of the auto industry to keep the economy healthy. Yet, their view of the industry's impact on the environment remained consistent. This shift does however open up for an alternative interpretation, a potential pitfall, in dealing with the concept of learning here, as it is also possible that it is conditioned by strategic choices rather than actual learning processes.

5.3 The policy subsystem

Turning now to policy subsystem instead, we may start by noting that the present case study is largely consistent both with previous research on the topic (e.g. Dettmer & Wrangler 2010; Haug et al. 2010; Princen 2012) and with the assumptions of the subsystem (e.g. Weible & Sabatier 2007; 2011; Nohrstedt et al. 2017). The formation of both coalitions was made, because stakeholders sought to increase their chances of being successful at converting their beliefs into policy. The potential of a 'hurting stalemate', in which the coalition on each side of the issue will not accept a status quo situation, cannot be considered valid in this case. Thus, it is likely that the ACEA would have accepted that nothing happened, given their competitive and financial anxiety, yet, the T&E would not have accepted a continuation on the same path, as it would have harmed their fundamental beliefs. Also, one can argue that both coalitions acted rationally in campaigning for their cause.

As for the policy broker concept, the issue of environmental impact by road transports was already on the Commissions radar, as regulations for light-duty vehicles had already been implemented. Hence, one may assume that the Commission was more of a prerequisite for the policy debate than a result of it. The rationale behind this can be seen through the fact that the EU is the highest European instance of the territorial boundary in this conflict, as well as in decision-making in general. In the present case, the stakeholders tried to influence the policy by various means, as predicted by the MLG insights from previous research (e.g. Selin & Vandever 2015; Berkhout 2010; Benson & Adelle 2012), and the Commission acting according to governance principles. The Commission was often criticized in this process,

where both coalitions pointed out several flaws in their argumentation. But this was more or less expected, as the broker role implies the task of finding a plausible compromise.

As work proceeded, both coalitions deployed a number of resources to back up their positions, first and foremost research and statistics, which often contradicted each other. The representatives of the industry repeated their view that they were world leaders in automotive innovation, and as such also were the ones who invested most in it. Interestingly, both coalitions took to the same venues in this sense, although the presentation of facts began to increase significantly first in 2014-2015. The assumptions of stakeholders trying to find competitive advantages are therefore interesting. A likely reason for both coalitions to focus on science-based facts is the technicalities of the problem, in a way a strategic choice to counter science with science. Another likely explanatory factor is that the EU emphasize science-based evidence in their decision-making processes. It is interesting to note that the T&E shared their social media presence in their annual reviews, something the ACEA did not. Yet, many of the companies forming part of the ACEA are featured on several social platforms. A possible explanation for this is that the topic is highly sensitive and sometimes hard to argue against, which the ACEA actually did not, but their quest for a competitive Europe may have seemed so, especially through the lens of the T&E. Thus, it seems reasonable to argue that the T&E enjoyed a competitive advantage as regards the topic of discussion, while, on the other hand, the manufacturers of the trucks also featured a competitive advantage, based on the importance of transportation and the urge to keep production chains alive.

5.4 The advocacy coalition framework

As hinted at previously, the Advocacy coalition framework is ambitious. The focus in this investigation has been on the policy subsystem and the beliefs of the two coalitions. That being said, there are of course other components, often intertwined with each other, that have played an important role as well, in particular in terms of understanding. The shaping factors, typically relatively stable parameters and long-term coalition opportunity structures, were an important input, as they highlight how the coalitions could manage the situation. The general opportunities for advocacy coalitions can be considered good through the governance system, and both of the present coalitions were well established and had sufficient connections to various other organizations. Incidentally, this forms the participatory EU as we have come to

know it. Together with the relative stability and the long-term opportunities, not only those settling the frames for the problem, these factors also allow for the problem to evolve by allowing stakeholders to organize themselves, influence the political discussion and react to the suggested HDV policy. Moreover, the short-term constraints and resources of subsystem actors were to a large extent covered throughout the analysis of beliefs, the learning patterns and the subsystem structures. Both coalitions are likely to have felt certain constraints in the Commission's capability to act, and displayed their dissatisfaction accordingly. When the conflict was intensified in 2015, the broad range of resources of the two coalitions was shown both scientifically and economically. The usage of them seems to have corresponded well to the other shaping factors, including the EU's declared commitment to science-based decision-making.

6 Conclusions

The main goal of this study has been to try to increase our understanding of what lies behind the EU's policy formulation of environmental concerns in a competitively-driven political economy. As part of this, the aim has also been to provide a broader picture of how climate change policies can be integrated in complex governance structures, and if there is possibly a case for saying that they are actually undermined by that structure. To realize these purposes, three research questions were formulated at the beginning of the study, repeated here for convenience:

- How can the roles of the advocacy coalitions be described in the formulation of the new emission standards policy for HDVs?
- What belief systems seem to condition this process?
- To what extent can policy-oriented learning be said to have taken place between the automotive and environmental coalitions?

Among other things, the results of the investigation show that the formulation of an environmental policy can be troublesome in a competitively-driven political economy, something which is consistent with previous findings by e.g. Smith (2010) and Haug et al. (2010). As such, the study contributes to an increased understanding of the formulation of the EU's environmental policies, in particular in the field of emissions from vehicles. Further, it turned out that the belief systems of the two coalitions were rather different from one another, as shown by the way they were applied to influence the HDV emission standards policy. The

environmental coalition, represented by the T&E, based their activities on beliefs rooted in green ideology, in which sustainability and the well-being of the environment were at the forefront. This translates into a situation where they tried to influence policy-makers into restricting and reducing goods and activities that were considered harmful to the environment. The automotive coalition, on the other hand, represented by the ACEA, featured more liberal beliefs, although with conservative nuances, in which competitiveness, general well-being and protection of the industry were the points of departure. This translates, in its turn, into an advocacy for reducing regulations and barriers for the manufacturing and use of HDVs.

When it comes to the question whether policy-oriented learning can be said to have taken place between the automotive and environmental coalitions, we can establish that it actually did, to some extent. The analysis suggests that learning occurred in the sense that the ACEA accepted the environmental concerns to a much higher degree from 2015 and onwards. This acceptance indicates a change in approach, in particular with reference to the periods prior to the proposal. Yet, it cannot be ruled out that it was a strategic choice employed by the ACEA, given the fact that the environment had gained such prominence in European politics. Their beliefs are also still anchored in liberal market-driven influences. However, as the new standard required a limitation of CO₂ emissions from new HDVs, the ACEA were quick to state their concerns over the magnitude of the penalties. This implies a certain level of compliance, and potentially constitutes a case of learning by adaptation to policy change.

Turning finally to the role of advocacy coalitions in the formulation of the new emission standards policy, we can establish that the actions of these coalitions were taken first and foremost to safeguard their own interests. Arguably, however, there are more role aspects to consider in this context. One thing is that the coalitions often contribute as opinion makers, trying to establish well-grounded viewpoints in the policy debate. The EU's commitment to governance mechanisms suggests that the role of coalitions and stakeholders in general is to participate and enhance European politics further. The aspiration of being a frontrunner in most political areas tends to stimulate the cooperation with stakeholders, as was the case in the present study. An exponent of this is the fact that both coalitions were part of expert groups headed by the Commission itself. This common denominator in this case is unity, a word that may seem contradictory given the character of the present investigation. Yet, it is issues like this that need be uncovered to broaden and develop Europe in a new political era, showing also that it is possible for the environment and the economy to go hand in hand.

Thus, it can be concluded that advocacy coalitions play an important part in contributing to, enhancing and questioning contemporary policies and the future of them.

6.1 Implications for policy-makers

While the million-dollar question of how to please two sides of a coin remains unanswered, the present study has provided insights that may be important for policy-makers in the future. First and foremost, the participatory governance structure entails that interests play an active role in European politics. Having said that, there is always a risk in inviting big advocacy coalitions to the drawing table, given that such groups may contradict the general public interest, and thus potentially lead to policies being twisted to serve a particular interest rather than the interest of the public. Accordingly, the risk of being faced with such twisted policies calls for measures of preservation and the development of fundamental principles, such as scrutiny, transparency and the consulting of citizens, etc. As for HDVs, the analysis indicates that policy-makers stand the risk of either over-regulating or under-regulating an important industry, i.e. one that is able to manifest Europe at the front of the development both innovatively and politically. Yet, it may also be conceived of as a win-win situation, as disproportionate regulation of the industry is likely to result in more innovations, making HDVs more environmentally-friendly as well as economically viable. On the other hand, if under-regulation applies, it might lead to increased production and profits, while letting the environment foot the bill.

6.2 Implications for theory

In terms of theory proper, there are also a few interesting aspects worth mentioning. As for the case of HDVs, the sensitiveness of the topic is likely to have played an important role. The more environmental concerns grew in society, the more they turned in favour of environmental interests. Likewise, when the financial crisis hit, the economy went to the top of the agenda, leading to substantial action from the EU to stimulate competitiveness and aspects benefitting businesses, thus contradicting the interests of the environment. Together with external events, contemporary political discourses unfolded a force capable of bringing about significant changes in a sector affecting multiple areas in society. Moreover, a sort of sub-trend can be identified concerning the relationship between the two coalitions. Specifically, the T&E pictured the automotive business as a reluctant actor, something which seems to have increased over the years, potentially because of external events or campaigns

by the ACEA. Therefore, it seems legitimate to emphasize the relationship of the advocacy coalitions in a policy subsystem, as it may be important for the conflict and affect policy-oriented learning.

6.3 Future research

While the present study has contributed some insights into the field of climate change policies in a politically driven economy, there are of course many interesting aspects of this topic that remain unexplored. For example, it would be interesting to study other coalition structures in a similar research paradigm. One such coalition would be the oil industry, although such an extension would have to go beyond European borders, and conceivably involve intergovernmental as well as supranational aspects. It would also be of value to look further into the role of individual countries in trying to block particular regulations. One case in point here is the action of Germany in connection with the T&E's efforts to introduce more sustainable transports in Europe. Finally, there is also the interesting problem of how the EU can implement specific standards in Europe without posing possible hindrances in terms of market shares and competitive advantages to businesses and organizations from other continents. After all, it is clear by now that the EU's commitment to the environment is here to stay.

Bibliography

- Atieno, O, P., 2009. An analysis of the strengths and limitations of qualitative and quantitative research paradigms. *Problems of Education in the 21st Century*, 13(1), pp. 13-38
- Bacchi, C.L., 2009, *Analysing Policy: What's the problem represented to be?* Pearson Higher Education AU.
- Benson, D. & Adelle, C., 2012. EU environmental policy after the Lisbon treaty. In Jordan, A. & Adelle, C., 2012. *Environmental Policy in the EU: Actors, institutions and processes, Third Edition*. Taylor and Francis, pp. 32-48.
- Berkhout, D.J., 2010. *Political activities of interest organizations: Conflicting interests, converging strategies* (Doctoral dissertation).
- Bryman, A. & Bell, E., 2011. *Business Research Methods*. 3rd ed. Oxford: Oxford University Press.
- Burns, C. & Tobin, P., 2016. The Impact of the Economic Crisis on European Union Environmental Policy. *JCMS: Journal of Common Market Studies*, 54(6), pp.1485–1494.
- Börzel, T.A. & Buzogány, A., 2019. Compliance with EU environmental law. The iceberg is melting. *Environmental Politics*, 28(2), pp. 315-341.
- Cho, C., Patten, H. & Roberts, D., 2006. Corporate Political Strategy: An Examination of the Relation between Political Expenditures, Environmental Performance, and Environmental Disclosure. *Journal of Business Ethics*, 67(2), pp. 139-154.
- Dettmer, B. & Wangler, L., 2010. Environmental policy and the European automotive industry. *Environmental Economics*, 1(1), pp. 29-44.
- Dubois, A. & Gadde, L.-E., 2002. Systematic combining: an abductive approach to case research. *Journal of Business research*, 55(7), pp.553-560
- Dür, A., 2008. Interest groups in the European Union: How powerful are they?, *West European Politics*, 31(6), pp. 1212-1230.
- Eckstein, H., 2009. Case Study and theory in political science. In *Case Study Method*, SAGE Publications Ltd, London, pp. 118-164, [Accessed 11 May 2020], doi: 10.4135/9780857024367
- Eising, R., 2015. Multilevel governance in Europe. In José M. Magone, 2014. *Routledge Handbook of European Politics*, Routledge Ltd - M.U.A.
- Elliot, J., 2005. *Using Narrative in Social Research: Qualitative and Quantitative Approaches*. London: Sage Publications.

- Fairbrass, J. & Jordan, A., 2004. Multi-level Governance and Environmental Policy. In Bache, I. & Flinders, M., 2004. (eds) *Multi-level Governance*. Oxford University Press, Oxford
- Fairbrass, J. & Warleigh, A. eds., 2003. *Influence and interests in the European Union: the new politics of persuasion and advocacy*. Routledge
- George, L. A. & Bennet, A., 2005. *Case Studies and Theory Development in the Social Sciences*. Cambridge, Massachusetts: Harvard University
- Gerring, J., 2006. *Case study research: Principles and practices*. Cambridge university press.
- Guba, E., 1981. Criteria for assessing the trustworthiness of naturalistic inquiries. *ECTJ*, 29(2), pp.75–91.
- Gullberg, A.T., 2008. Lobbying friends and foes in climate policy: The case of business and environmental interest groups in the European Union. *Energy Policy*, 36(8), pp.2964–2972.
- Haug, C., Rayner T., Jordan, A., Hildingsson, R., Stripple, J., Monni, S., Huitema, D., Massey, E., van Asselt, H. & Berkhout, F., 2010. Navigating the dilemmas of climate policy in Europe: Evidence from policy evaluation studies. *Climate Change*, 101(3-4), pp.427-445.
- Heywood, A., 2017. *Political ideologies: An introduction*. Macmillan International Higher Education.
- Hooghe, L. & Marks, G., 2001. *Multi-Level Governance and European Integration*, Lanham: Rowman & Littlefield Publishers.
- Jenkins-Smith, H.C. & Sabatier, P.A., 1994. Evaluating the Advocacy Coalition Framework. *Journal of Public Policy*, 14(2), pp.175–203.
- Kapstein, E. B., 1989. Resolving the regulator's dilemma: international coordination of banking regulations. *International Organization*, 43(2), pp. 323-347.
- King, G., Keohane, R.O. & Verba, S., 1994. *Designing social inquiry: Scientific inference in qualitative research*. Princeton University press.
- Kuckartz, U., 2014. *Qualitative Text Analysis: A Guide to Methods, Practice & Using Software*, London: SAGE Publications, Ltd.
- Long, T. & Lörinczi, L., 2009. NGOs as Gatekeepers: A Green Vision. In Coen, D., Richardson, J.J. & Ebooks Corporation, 2009. *Lobbying the European Union institutions, actors, and issues*, Oxford: OUP Oxford.
- McCormick, J., 2001. *Environmental Policy in the European Union*, Basingstoke: Palgrave.
- Moravcsik, A., 1998. *The Choice for Europe: social purpose and state power from Messina to Maastricht*, London: Routledge.

Nohrstedt, D. et al., 2017. The Advocacy Coalition Framework;; An Overview of the Research Program. In M. Weible, C., 2017. *Theories of the Policy Process*. 4th ed., Taylor & Francis Group, Milton. pp. 135-171.

Ongaro, E., 2015. Multi-level governance: The missing linkages. *Critical Perspectives on International Public Sector Management*, 4, pp.1–14.

Paster, T., 2018. How do Business Interest Groups Respond to Political Challenges? A Study of the Politics of German Employers. *New Political Economy*, 23(6), pp. 674-689.

Princen, S., 2012. Agenda Setting. In Jordan, A. & Adelle,. 2012. *Environmental Policy in the EU: Actors, institutions and processes, Third Edition*. Taylor and Francis, pp. 191-208.

Rasmussen, A., Mäder, L.K, & Reher, S., 2018. With a Little Help From The People? The Role of Public Opinion in Advocacy Success. *Comparative Political Studies*, 51(2), pp. 139-164.

Richardson, J., 2015. The EU as a policy-making state: a policy system like any other=. In *European Union* (pp. 3-32). Routledge.

Sabatier, P., 1988. An advocacy coalition framework of policy change and the role of policy-oriented learning therein. *Policy Sciences*, 21(2), pp.129–168.

Sabatier, P.A., 1998. The advocacy coalition framework: revisions and relevance for Europe. *Journal of European Public Policy*, 5(1), pp.98–130.

Sauter, W., 2011. Competition Policy. In El Agra, Ali M. (2011) *The European Union: Economics and Policies*, 9th ed. Cambridge University Press. pp. 197-213

Selin, H. & VanDeveer, S.D., 2015. *EU Environmental Policy Making and Implementation: Changing Processes and Mixed Outcomes*.

Shenton, A.K., 2004. Strategies for Ensuring Trustworthiness in Qualitative Research Projects. *Education for Information*, 22(2), pp.63–75.

Szlávik, J., Nagypál, N. & Pálvögyi, T., 2005. SUSTAINABILITY AND BUSINESS BEHAVIOUR: THE ROLE OF CORPORATE SOCIAL RESPONSIBILITY. *Periodica Polytechnica. Social and Management Sciences*, 13(2), pp. 93-105.

Smith, M.P., 2010. Single market, global competition: regulating the European market in a global economy. *Journal of European Public Policy*, 17(7), pp. 936-953.

Topper, K., 2011. Hermeneutics. In Badie, Bertrand, Berg-Schlosser, Dirk & Morlino, Leonardo, 2011. *International Encyclopedia of Political Science*, Thousand Oaks: SAGE Publications, Inc. pp.1072–1075.

Tortola, P.D., 2017. Clarifying multilevel governance. *European Journal of Political Research*, 56(2), pp. 234-250.

Wagner, S.M.M. & Anastasiadis, S., 2014. Do Multinational enterprises contribute to sustainable development by engaging in lobbying? The automotive industry and environmental regulations. *Progress in International Business Research*, 8, pp. 173-202.

Wallace, H., Wallace, W., & Pollack, M. A., 2005. *Policy-making in the European Union* 5. ed., Oxford: Oxford University Press.

Weible, C & Sabatier, P., 2007. A Guide to the Advocacy Coalition Framework. In Fischer, F., Miller, G. & Sidney, M.S., 2007. *Handbook of public policy analysis : theory, politics, and methods*. CRC Press, Taylor and Francis Group, Boca Raton, FL. pp. 123-136.

Weible, C.M., Sabatier, P.A. & McQueen, K., 2009. Themes and variations: Taking stock of the advocacy coalition framework. *Policy Studies Journal*, 37(1), pp.121-140

Weible, C & Sabatier, P 2011, 'Advocacy coalition framework'. In Badie, B, Berg-Schlosser, D & Morlino, L (eds), *International encyclopedia of political science*, SAGE Publications, Inc., Thousand Oaks, CA, pp. 34-37, viewed 8 April 2020, doi: 10.4135/9781412959636.n7.

Willis, J.W., 2007. 'World views, paradigms, and the practice of social science research'. In *Foundations of qualitative research: Interpretive and critical approaches*, SAGE Publications, Inc., Thousand Oaks, CA, pp. 1-26.

Whitmarsh, L & Köhler, J., 2010. Climate Change and cars in the EU: the roles of auto firms, consumers, and policy in responding to global environmental change. *Cambridge Journal of Regions, Economy and Society*, 3(3), pp. 427-441.

Yin, R.K., 2010. *Qualitative Research from Start to Finish*. Guilford Publications, New York.

Zachariadis, T., 2016. After 'dieseltgate': Regulations or economic incentives for a successful environmental policy? *Atmospheric Environment*, 138, pp. 1-3.

Zivin, J. & Small, A., 2005. A Modigliani-Miller theory of altruistic corporate social responsibility. *Topics in economic analysis & policy*, 5(1), p. 1.

Electronic sources

ACEA,. 2020a. Who we are. European Automobile Manufacturer's Associations. Brussels. Available: <https://www.acea.be/about-acea/who-we-are> Retrieved: 2020-03-15

ACEA,. 2020b. What we do. European Automobile Manufacturer's Associations. Brussels. Available: <https://www.acea.be/about-acea/what-we-do> Retrieved: 2020-03-15

ACEA,. 2020c. Competitiveness, Market and Economy. European Automobile Manufacturer's Associations. Brussels. Available: <https://www.acea.be/industry-topics/tag/category/competitiveness-market-economy> Retrieved: 2020-03-15

ACEA,. 2020d. Research and Development. European Automobile Manufacturer's Associations. Brussels. Available: <https://www.acea.be/industry-topics/tag/category/research-and-innovation> Retrieved: 2020-03-15

ALTER-EU, 2019. What is the problem. The Alliance for Lobbying Transparency and Ethics Regulation. Brussels. Available: <https://www.alter-eu.org/what-is-the-problem> Retrieved: [2019-11-23]

EUCAR., 2020a. About EUCAR. European Council for Automotive R&D. Brussels. Available: <https://www.eucar.be/about-eucar/mission/> Retrieved: 2020-03-20

EUCAR., 2020b. Horizon 2020. European Council for Automotive R&D. Brussels. Available: <https://www.eucar.be/horizon2020/> Retrieved: 2020-03-20

EPA., 2020. Greenhouse gas. United States Environmental Protection Agency. Available: <https://www.epa.gov/ghgemissions/overview-greenhouse-gases#f-gases> Retrieved: 2020-03-25

EEA, 2015. The European environment – state and outlook 2015: synthesis report, European Environment Agency. Copenhagen. Available: <https://www.eea.europa.eu/soer-2015/synthesis> Retrieved: 2019-10-23

EEA., 2016. Explaining road transport emissions: A non-technical guide. European Environment Agency. European Union. EEA, Copenhagen. Available: <https://www.eea.europa.eu/publications/explaining-road-transport-emissions> Retrieved: 2020-03-27

European Commission, 2001a. *European Governance: A White Paper*. European Commission. Brussels 25.7.2001. COM(2001) 428 final. Available: https://ec.europa.eu/europeaid/sites/devco/files/communication-white-paper-governance-com2001428-20010725_en.pdf Retrieved: 2019-11-23

European Commission., 2001b. White paper - European transport policy for 2010: time to decide. European Commission. Brussels. Available: https://ec.europa.eu/transport/sites/transport/files/themes/strategies/doc/2001_white_paper/lb_com_2001_0370_en.pdf Retrieved: 2020-05-12

European Commission, 2014. General Union Environment Action Programme to 2020. *Living well, within the limits of our planet*. Directorate-General for Environment, European Commission. Luxembourg: Publications Office of the European Union, 2014. Available: <https://op.europa.eu/en/publication-detail/-/publication/1d861dfb-ae0c-4638-83ab-69b234bde376> Retrieved: 2019-10-23

European Commission, 2019a. Automotive Industry. Internal Market, Industry, Entrepreneurship and SMEs. European Commission. Available: https://ec.europa.eu/growth/sectors/automotive_en Retrieved: 2019-10-28

European Commission, 2019b. Environmental aspects of the automotive industry. Internal Market, Industry, Entrepreneurship and SMEs. European Commission. Available: https://ec.europa.eu/growth/sectors/automotive/environment-protection_en Retrieved: 2019-10-25

European Commission., 2019c. Links between production, the environment and environmental policy – Final report. European Commission. Brussels. Available: https://ec.europa.eu/environment/enveco/economics_policy/pdf/studies/KH0319438ENN.pdf Retrieved: 2020-05-01

European Commission., 2020a. Reducing CO2 emissions from heavy-duty vehicles. European Commission. Brussels. Available: https://ec.europa.eu/clima/policies/transport/vehicles/heavy_en Retrieved: 2020-05-04

European Commission., 2020b. Eurobarometer surveys public attitudes on the environment. Environment. European Commission. Brussels. Available: https://ec.europa.eu/environment/eurobarometers_en.htm Retrieved: 2020-05-04

European Parliament., 2020. Heavy-Duty Vehicles CO2 Emissions and Fuel Efficiency. Legislative Train. European Parliament. Brussels. Available: <https://www.europarl.europa.eu/legislative-train/theme-resilient-energy-union-with-a-climate-change-policy/file-heavy-duty-vehicles-co2-emissions-and-fuel-efficiency> Retrieved: 2020-0601

FTI Consulting., 2015. Regulation and Competitiveness of the EU Automotive Industry – Final report. Study prepared for the ACEA. FTI Consulting. London. Available: https://www.fticonsulting.com/~/_media/Files/us-files/intelligence/intelligence-research/regulation-and-competitiveness.pdf Retrieved: 2020-05-02

Green 10., 2019. 2019 European Parliament Election Manifesto. Available: <https://green10.org/wp-content/uploads/2017/06/GREEN-10-MANIFESTO-IN-ENGLISH-WITH-CONTACT-DATA.pdf> Retrieved: 2020-05-02

Liljeheden, A., 2019. Krav på minskade utsläpp från EU-lastbilar. Sveriges Radio. Bryssel. Available: <https://sverigesradio.se/sida/artikel.aspx?programid=83&artikel=7158134> Retrieved 2020-04-30 (In Swedish)

Transport Policy., 2018. Regions: European Union. Transportpolicy.net (ICCT & Dieselnet). Available: <https://www.transportpolicy.net/region/europe/european-union/> Retrieved: 2020-03-20

The Treaty on European Union (TEU), (Consolidated version), 2016. *Official Journal of the European Union*, C 202, 7.6.2016, p. 13-388 (EN). Available: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:12016M/TXT> Retrieved: 2019-10-25

The Treaty on the Functioning of the European Union (TFEU), (Consolidated version), 2012. *Official Journal of the European Union*, C 326, 26.10.2012, (EN). Available: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12012E%2FTXT> Retrieved: 2019-10-25

T&E., 2020a. Getting zero-emission trucks on the road. Transport & Environment. Brussels. Available: <https://www.transportenvironment.org/events/getting-zero-emission-trucks-road> Retrieved: 2020-05-04

T&E., 2020b. About us. Transport & Environment. Brussels. Available: <https://www.transportenvironment.org/find-us> Retrieved: 2020-04-30

UN Environment Programme, 2016. UN Environment Report: Put people, not cars first in transport systems. Sustainable Development Goals. UN News Centre, United Nations. Available: <https://www.un.org/sustainabledevelopment/blog/2016/10/un-environment-report-put-people-not-cars-first-in-transport-systems/> Retrieved: 2019-11-22

Electronic sources – for section 4.5

ACEA., 2009a. Cars, Trucks, and the Environment. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/20100309_Brochure_Cars_Trucks_and_the_Environment-1.pdf Retrieved: 2020-05-12

ACEA., 2009b. EU Project on Transport GBG: Routes to 2050. ACEA comments. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/20090612_ACEA_comments_On_Transport_GHG_Routes_2050.pdf Retrieved: 2020-05-12

ACEA., 2010. The Automobile Industry Pocket Guide 2010. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/POCKET_GUIDE_2010.pdf Retrieved: 2020-05-12

ACEA., 2011. The Automobile Industry Pocket Guide 2011. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/POCKET_GUIDE_2011.pdf Retrieved: 2020-05-12

ACEA., 2012a. The Automobile Industry Pocket Guide 2012. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_POCKET_GUIDE_2012_UPDATED.pdf Retrieved: 2020-05-12

ACEA., 2012b. A Competitive Auto Industry for Europe. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_Position_paper_A_Competitive_Auto_Industry_for_Europe_20121108.pdf Retrieved: 2020-05-30

ACEA., 2013a. The Automobile Industry Pocket Guide 2013. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/POCKET_GUIDE_13.pdf Retrieved: 2020-05-30

ACEA., 2013b. The Truck of the Future: Innovative, Fuel-efficient, Safe. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/201306XX_Truck_ofthe_Future_Weights_Dimensions.pdf Retrieved: 2020-05-30

ACEA., 2014a. The Automobile Industry Pocket Guide 2014-2015. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/POCKET_GUIDE_2014-1.pdf Retrieved: 2020-05-30

ACEA, 2014b. A Manifesto For A Competitive European Automobile Industry: ACEA recommendations for the European Parliament and European Commission. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/A_Manifesto_for_a_Competitive_European_Auto_Industry.pdf Retrieved: 2019-10-28

ACEA., 2014c. Introduction of a standardised carbon footprint methodology: DG Move Consultation – ACEA reply. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/Footprinting_Transport.pdf Retrieved: 2020-05-30

ACEA., 2014d. A Future EU Transport Policy: ACEA Priorities. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_priorities_future_EU_Transport_Policy_15_07_REFORMATTED.pdf Retrieved: 2020-05-30

ACEA., 2016a. The Automobile Industry Pocket Guide 2016-2017. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_Pocket_Guide_2016_2017.pdf Retrieved: 2020-05-30

ACEA., 2016b. Reducing CO2 Emissions from Heavy-Duty Vehicles. ACEA Position Paper. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_Position_Paper_Reducing_CO2_Emissions_from_Heavy-Duty_Vehicles.pdf Retrieved: 2020-05-30

ACEA., 2016c. Monitoring and reporting CO2 emissions and fuel consumption of new heavy-duty vehicles. ACEA Position Paper. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_position_paper-monitoring_reporting_CO2_of_heavy-duty_vehicles.pdf Retrieved: 2020-05-30

ACEA., 2018a. The Automobile Industry Pocket Guide 2018-2019. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_Pocket_Guide_2018-2019.pdf Retrieved: 2020-05-31

ACEA., 2018b. The European Commission proposal on CO2 standards for new heavy-duty vehicles. ACEA Position Paper. European Automobile Manufacturer's Association. Brussels. Available: https://www.acea.be/uploads/publications/ACEA_position_paper-Proposal_CO2_standards_new_heavy-duty_vehicles.pdf Retrieved: 2020-05-31

ACEA., 2018c. Leading the mobility transformation: The future of the EU auto industry. Manifesto 2019-2024. European Automobile Manufacturer's Association. Brussels. Available: <https://www.acea.be/publications/article/the-future-of-the-eu-auto-industry-acea-manifesto-2019-2024> Retrieved: 2020-05-31

ACEA., 2019. The Automobile Industry Pocket Guide 2019-2020. European Automobile Manufacturer's Association. Brussels. Available:

https://www.acea.be/uploads/publications/ACEA_Pocket_Guide_2019-2020.pdf Retrieved: 2020-05-31

T&E., 2009. A Sustainable Future for Transport: A response to the European Commission Consultation. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/media/2009_09_future_of_transport_consultation_response_final.pdf Retrieved: 2020-05-12

T&E., 2010a. Annual Review 2009. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/media/WEB_annualreview2010.pdf Retrieved: 2020-05-12

T&E., 2010b. Understanding the effects of introducing lorry charging in Europe. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/media/2010_07_briefing_effects_of_lorry_charging.pdf Retrieved: 2020-05-30

T&E., 2011. Annual Review 2010. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/media/WEB_AR2010.pdf Retrieved: 2020-05-30

T&E., 2012. Annual Review 2011. Transport and Environment. Brussels. Available: <https://www.transportenvironment.org/sites/te/files/publications/Annual%20Review%202011.pdf> Retrieved: 2020-05-30

T&E., 2013a. Annual Review 2012. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/publications/Annual_Review_2012.pdf Retrieved: 2020-05-30

T&E., 2013b. Longer and heavier lorries in the EU – Position Paper. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/publications/T%26E%20position%20paper%20megatrucks%202013_final.pdf Retrieved: 2020-05-30

T&E., 2014a. Annual Report 2013. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/publications/finalT%26E_AR_2013_web.pdf Retrieved: 2020-05-30

T&E., 2014b. Joint letter in support of targeted 2030 policy for clean transport fuels. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/publications/2014%2010%2003%20Joint%20letter%20in%20support%20of%20targeted%202030%20policy%20for%20clean%20transport%20fuels_FINAL_0.pdf Retrieved: 2020-05-30

T&E., 2015. Annual report 2014. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/annual-report2014/assets/pdf/te_annual_report.pdf Retrieved: 2020-05-30

T&E., 2016a. Annual report 2015. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/te_annual_report_2015/transport-environment-ar2015.pdf Retrieved: 2020-05-30

T&E., 2016b. How the European car industry plans to meet the climate challenge. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/publications/2016_02_TE_Briefing_Europe_car_industry_plan_FINAL.pdf Retrieved: 2020-05-31

T&E., 2016c. What's delaying the VECTO tool for measuring truck emissions?. Transport and Environment. Brussels. Available: <https://www.transportenvironment.org/publications/whats-delaying-vec-to-tool-measuring-truck-emissions> Retrieved: 2020-05-31

T&E., 2016d. Letter on fuel efficiency standards for trucks. Transport and Environment. Brussels. Available: https://www.transportenvironment.org/sites/te/files/publications/2016_05_Letter_on_fuel_efficiency_standards_for_trucks-.pdf Retrieved: 2020-05-31

T&E., 2017. Transport is now Europe's biggest climate problem – Annual report 2016. Transport and Environment. Brussels. Available: <https://www.transportenvironment.org/transport-biggest-climate-problem/files/transport-and-environment-annual-report-2016.pdf> Retrieved: 2020-05-31

T&E., 2018a. It's the journey, not the destination – Annual report 2017. Transport and Environment. Brussels. Available: <https://www.transportenvironment.org/make-the-journey-of-phones-clean/index.html> Retrieved: 2020-05-31

T&E., 2018b. EU truckmakers' proposal for CO2 standards will increase climate emissions and make trucks less fuel efficient, T&E analysis shows. Transport and Environment. Brussels Available: <https://www.transportenvironment.org/sites/te/files/publications/T%26E%20analysis%20of%20VDA%20ACEA%20proposal%20CO2%20standards%20for%20trucks.pdf> Retrieved: 2020-05-31

T&E., 2019b. Annual report 2018. Transport and Environment. Brussels. Available: <https://www.transportenvironment.org/annual-report-2018/documents/TE-Annual-Report-2018.pdf> Retrieved: 2020-05-31

T&E., 2020. Annual report 2019. Transport and Environment. Brussels. Available: <https://www.transportenvironment.org/annual-report-2019/documents/TE-Annual-Report-2019.pdf> Retrieved: 2020-05-31