

MASTERARBEIT

Titel der Masterarbeit

The 21st Century Roller Coaster Case of the United States' Ethanol Policy:

**An analysis of the contributing factors in the conceptualization and decision making
process of the Energy Policy Act of 2005 and the Ethanol Subsidy and Tariff Repeal
Act.**

verfasst von

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We need an energy bill that encourages consumption.

George W. Bush 2002

Abstract (English)

Within this research, a case study method of qualitative analysis is conducted to structure the complex case of the U.S. ethanol policy within the theoretical proposals of the Multiple Streams (MS) model of Kingdon. The aim is to clarify how the EPCA of 2005, in connection with the Renewable Fuel Standard (RFS), was adopted, establishing never before seen ethanol positive policies as well as to analyze the 2011 passing of the VEETC in the Senate, which called for the immediate ending of a 30-year ethanol subsidy with the Ethanol Subsidy and Tariff Repeal Act. The factors at play in these legislative events, including political, environmental and economic components, are investigated through the use of primary document sources, mainly official documentary data, as well as secondary documents, such as books and reliable internet sources. Through placing such sources within Kingdon's MS model, structure and clarity is provided for the multifaceted interrelated circumstances revolving around ethanol's peak in prominence and subsequent condemnation. Specifically, it was determined that the appearance of a policy window and the successfully coupling of the problem, policy and political stream in a single package, by policy entrepreneurs, played a crucial role in the political transformation of U.S. ethanol policy. For the RFS, this meant that by the appearance of environmental, agricultural and energy problems, ethanol advocates had the chance to push their agendas by coupling ethanol as a solution to these problems; while in the case of the Ethanol Subsidy and Tariff Repeal Act, because the VEETC and ethanol legislation in general was pointed to as the cause of the respective problems, macro and federal economic problems were coupled with the solution of ending ethanol subsidies.

Abstract (Deutsch)

Im Rahmen dieser Forschungsarbeit wird anhand der Fallstudienanalyse und mit Hilfe der theoretischen Brille des Multiple Stream Ansatzes wird der komplexe Fall der Amerikanischen Ethanolpolitik skizziert als auch strukturiert. Ziel der hier vorgenommenen Untersuchung ist es, die wesentlichen Faktoren herauszuarbeiten, welche den Renewable Fuel Standard (RFS) in den 2005 erfolgten Erlass des Energy Policy Act (EPAAct) einfließen haben lassen, welcher eine noch nie dagewesene positive Ethanolpolitik etablierte. Weiters sollen jene Komponenten herausgearbeitet werden, die dazu führten, dass im Jahr 2011 überraschend die Verabschiedung einer Gesetzesvorlage im Senat stattfand, über welche die Subvention für die Ethanol-Industrie – durch den Wegfall des Volumetric Ethanol Excise Tax Credit (VEETC) - mit dem Ethanol Subsidy and Tariff Repeal Act, nach 30 Jahren ausgesetzt werden sollte. Die an diesen Ereignissen beteiligten Faktoren – unter anderem politische, ökologische und ökonomische Komponenten, werden anhand von Primärliteratur, überwiegend offizielle amtliche Unterlagen und Protokollierungen, als auch über Sekundärliteratur, beispielsweise Bücher und verlässliche Internetquellen, herausgearbeitet. Durch das Einbinden dieses Datenmaterials in den theoretischen Multiple Stream Ansatz von Kingdon, konnte Klarheit und Struktur in die komplexen und miteinander verknüpften Umstände rund um den höhepunktartigen Bedeutungsanstieg und die darauf folgenden Ablehnung von Ethanol gebracht werden. Insbesondere konnte festgestellt werden, dass in beiden Fällen, das Auftreten eines Politikfensters und das erfolgreiche Verbinden von Problem-, Policy- und Political Stream durch Policy Entrepreneurs, ein wichtiger Faktor für den politischen Wandel der Amerikanischen Ethanol Politik war. Im Bezug auf den RFS ergab das Auftreten von ökologischen, landwirtschaftlichen und energiebezogenen Problemen für die Ethanol-Verfechter die Chance, durch die Darstellung von Ethanol als Lösung für diese aktuellen Probleme, ihre Agenda durchzusetzen. Im Falle des Ethanol Subsidy and Tariff Repeal Act hingegen, wurden makroökonomische als auch staatswirtschaftliche Probleme mit der Lösung der Einstellung der Ethanol-Subventionierung verkoppelt, da der VEETC und die Ethanol-Gesetzgebung im Allgemeinen als die Ursachen der jeweiligen Probleme herausgestellt wurden.

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Abbreviations

ABA	American Bakers Association
ACE	American Coalition for Ethanol
ACF	Advocacy Coalition Framework
AFBF	American Farm Bureau Federation
AFPC	Agricultural and Food Policy Center
ALA	American Lung Association
AMI	American Meat Institute
AMI	American Meat Institute
API	American Petroleum Institute
ATR	Americans for Tax Reform
CAA	Clean Air Act
CAFÉ	Corporate Average Fuel Economy
CARD	Center for Agricultural and Rural Development
CBO	Congressional Budget Office
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFC	Clean Fuels Coalition
CO₂	Carbon dioxide
COP	Conference of the Parties
CRS	Congressional Research Service
CSIS	Center for Strategic and International Studies
CSR	Congressional Service Report
CWM	Committee on Ways and Means
DOE	Department of Energy
EERE	Office of Energy Efficiency and Renewable Energy
EF	Energy Foundation
EPA	U.S. Environmental Protection Agency
EPAct	Energy Policy Act
EWG	Environmental Working Group
EWG	Environmental Working Group
FAIR	Federal Agricultural Improvement Act and Reform
FOE	Friends of the Earth

GAO	U.S. Government Accountability Office
GEC	US Governor's Ethanol Coalition
GHG	Greenhouse gases
GMA	Grocery Manufacturers Association
IEA	International Energy Agency
IFPRI	International Food Policy Research Institute
LUST	Leaking Underground Storage Tank
MS	Multiple Stream
MS	Multiple Streams
MTBE	Methyl tertiary butyl ether
NAFTA	North American Free Trade Agreement
NCBA	National Cattlemens Beef Association
NCC	National Chicken Council
NCGA	National Corn Growers Association
NEPDG	National Energy Policy Development Group
NESCAUM	Northeast States for Coordinated Air Use Management
NEV	Net energy value
NEVC	National Ethanol Vehicle Coalition
NFU	National Farmers Union
NLCFS	National Low Carbon Fuel Standard
NOx	Nitrogen oxide
NPRA	National Petrochemical and Refiners Association
NPRA	Petroleum Refiners Association
NRC	National Research Council
NRDC	Natural Resources Defense Council
NREL	National Renewable Energy Laboratory
NTSC	National Science and Technology Council
NTU	National Taxpayers Union
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
PAN	Peroxyacyl nitrates
PET	Punctuated Equilibrium Theory
R&D	Research and development
RFA	Renewable Fuels Association

RFG	Reformulated Gasoline Program
RFS	Renewable Fuel Standard
ROR	Renewable Oxygenate Rule
TCS	Taxpayers for Common Sense
TCS	Taxpayers for Common Sense
TSCA	Toxic Substances Control Act
UNFCC	United Nations Framework Convention on Climate Change
USDA	U.S. Department of Agriculture
VEETC	Volumetric Ethanol Excise Tax Credit
VOC	Volatile organic compound)
WTO	World Trade Organization

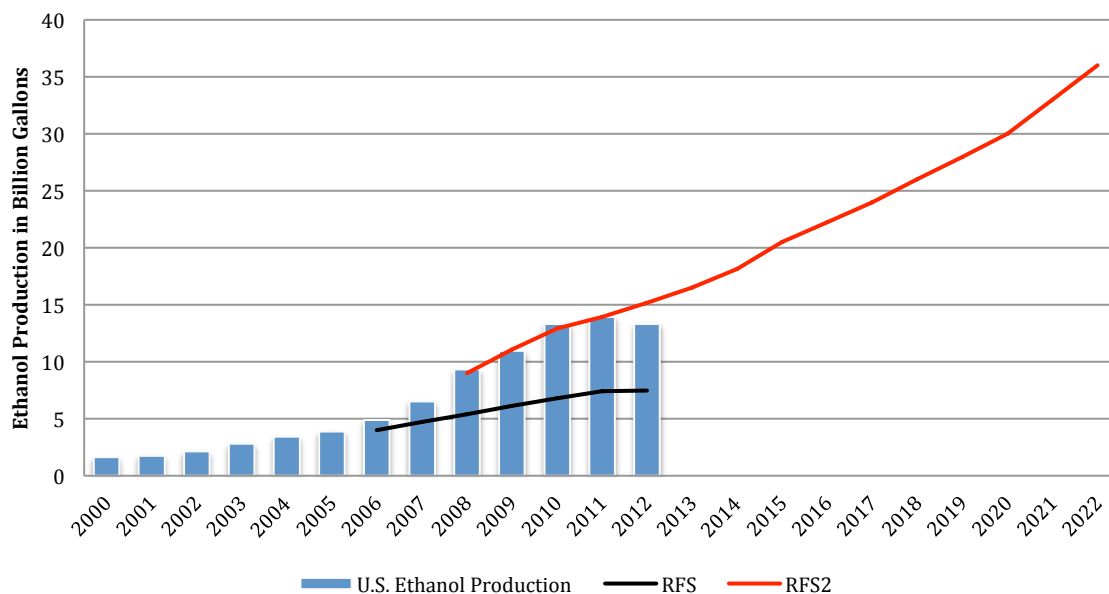
1. Introduction

1.1. Starting Point and Statement of the Problem

Over the last decade, in the face of rising oil prices, energy considerations and concerns over global warming, biofuels have become an increasingly important issue in many countries worldwide. In addition to countries, organizations are also showing concern for this growing topic. Surprisingly, even the International Energy Agency (IEA) - an institution of the Organization for Economic Cooperation and Development (OECD) - pointed out, in the background of a steady and increasing demand for oil, that a possible shortage of oil supply could occur. Further, they indicated that "Preventing catastrophic and irreversible damage to the global climate ultimately requires a major decarbonisation of the world energy sources" (IEA 2008: 37). Today, biofuels are seen as a technical option in defusing the previously mentioned problem areas. While various scientific communities dispute a number of the benefits afforded by biofuels (CO₂ cuts, environmental compatibility, etc.), such fuels are still a part of various governments' strategies and initiatives in the goal of reducing green house gases and dependence on foreign oil. It is hardly surprising that the United States, as the world's largest consumer and importer of oil and the largest emitter of carbon dioxide (CO₂), has recognized the great potential for biofuels since the late 1970s, when the first subsidy of ethanol was provided in the Energy Policy Act (EPA) of 1978. From this point on, various federal policies have played a fundamental role in the development of a national ethanol industry. Starting with an initial stimulus of a \$0.40/gallon subsidy in 1978 (which ranged up to \$0.60/gallon between 1978 - 2007), slow growth of ethanol production began to take place and continued up until 2003 (Tyner 2007). From 2003 on, ethanol production grew rapidly, as methyl tertiary butyl ether was phased out as a gasoline oxygenate (and replaced by ethanol) and as rising oil prices raised the need for an alternative fuel approach to combat energy insecurity. These endeavors resulted in the Energy Policy Act of 2005 (109th Congress – P.L.58, 109th Congress – H.R.6), a major piece of legislation that significantly impacted ethanol policy with its section 1501, Renewable Fuel Standard (RFS). Signed into law by President George W. Bush on August 8th 2005, this was the nation's first official federal requirement that a specific amount of renewable fuel must be blended into transportation fuel. Even though tax credits have existed for the last 27 years, this renewable fuel mandate, often referred to as RFS, which required 4 billion gallons of ethanol to be used in 2006 followed by increasing target of 7.5 billion blended into gasoline by 2012 (109th Congress –

P.L.58: 1069), caused a real boom of ethanol production in the United States. Coupled with an increase of the RFS mandates through the Energy Independence and Security Act of 2007 (110th Congress – P.L.140, 109th Congress – H.R.6) (RFS2), which demanded and required that renewable fuel be blended into transportation fuel from 9 billion gallons in 2008 to 36 billion gallons by 2022 (110th Congress – P.L.140: 31), ethanol production rose from 3.904 billion gallons in 2005 to 13.900 billion gallons in 2011 (RFA 2012).

Figure 1: U.S. Ethanol Production and the RFS mandates



Source: own illustration, data retrieved from RFA (2012) and EPA (2012)

Even though the production of corn ethanol was already at the center of much scientific controversy during the period of formation and development of the EPAct of 2005, with the exponential growth of production, the period of 2005 through 2011 saw a raft of divergent views featured in media headlines. When the EPAct was founded, there was only minimal concern about the social, economic and ecological compatibility of corn ethanol expressed by policy-makers, environmentalists, energy producers and food producers, but as time passed, these actors began to increasingly express their concerns regarding ethanol. Coupled with the *fuel versus food* debate on the basis of the word food crisis in 2007/2008 and the increasing criticism against the fact of rising costs of ethanol production for the taxpayer (Glozer 2011), members of Congress started to temper their previous enthusiasm for ethanol. With ethanol becoming a multidimensional issue, Senator Tom Coburn (R-OK), an Oklahoma Republican, and Senator Dianne Feinstein (D-CA), a Californian Democrat,

introduced a senate bill titled Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871) in May 2011. This bipartisan legislation was then offered as an identical amendment (112th Congress –S.Amdt.436) to the Economic Revitalization Act of 2011 (112th Congress –S.782) and was intended to repeal, by July 1st 2011, the subsidy Volumetric Ethanol Excise Tax Credit (VEETC) that companies received for blending ethanol with gasoline. Even though S.Amdt.436 was rejected by a 40-59 vote in the U.S. Senate on June 14th 2011, on June 16th 2011, the U.S Senate suddenly voted 73-27 in favor of an identical amendment (112th Congress – S.Amdt.476) to the Economic Revitalization Act of 2011 (112th Congress – S.782), which was proposed by Senator Dianne Feinstein (D-CA) only one day after S.Amdt.436 was voted down. However, even though S.Amdt.476, which is identical to S.871, was not picked up by the House and never became law before the deadline of July 1st 2011, it can be seen as a symbolic attempt to strike ethanol tax subsidies and represented a strong message from Congress that the VEETC, which was comprised of the excise tax credits and the import tariff on ethanol, would not be extended beyond the 31st of December 2011. Consequently, by the end of 2011, after 30 years, the ethanol excise tax and the import tariff on ethanol quietly expired and it seems that except for a few inveterate ethanol proponents, all of which were corn state politicians, not many policymakers in Congress made an attempt towards extension. As President of the National Cattlemen's Beef Association (NCBA), Bill Donald stated that “after 30 years and more than \$30 billion in taxpayer support, the day has come to let the mature corn-based ethanol industry stand on its own two feet” (SFP 2011). Looking at these three decades in relation to the dynamics of ethanol policy, many Congressional initiatives have been originated to promote the production and consumption of ethanol. Even so, the question arises of how in 2005 a law was adopted (and not before) that established never before seen ethanol policies and then suddenly, in 2011, a 30-year ethanol subsidy era came to an end. From 2000 to 2011, corn ethanol crossed over from being promoted by a large number of Congress Members as a universal solution for energy security policy and a way to tackle climate change, to an issue with a social, economic, political and environmental impact on the country.

1.2. Research Aims and Overall Research Question

The central objective of this study is therefore to describe in retrospect and in a causal explanation, how decisions regarding the adoption of section 1501 (RFS) within the Policy Act of 2005 and the Ethanol Subsidy and Tariff Repeal Act came about (cause study). The

study's key focus concerns the question of how the involved actors interacted and how this, together with various specific circumstances, led to the adoption of these two significant ethanol policy milestones at the appropriate time in the history of ethanol. The study therefore aims to show how both legislative initiatives managed placement on the political agenda and how agreement was finally reached, resulting in the initiatives being brought into existence. Thus, this thesis aspires to offer a causal reconstruction of the development and the introduction of the RFS within the EPL of 2005 (P.L. 109-58, 109th Congress - H.R.6) and the Ethanol Subsidy and Tariff Repeal Act (112th Congress - S.871). To accomplish a plausible explanation and description, the research will focus on the *policy cycle* phase of *agenda-setting* and *decision*. Even though theories of political change have different descriptions of the policy process, all follow the idea that the policy process can be broken down into stages. Thus, in focusing on the agenda-setting and decision making stages of the respective theories, it should be possible to determine what factors caused the idea of ethanol to be favorable, resulting in placement on the policy agenda. Further, an answer as to how, from the point of achieving placement on the agenda, the solution of ethanol translated into the RFS within the EPL of 2005 and what factors concluded in the Senate support of the Ethanol Subsidy and Tariff Repeal Act, which demonstrated a growing support to not extend a 30-year ethanol subsidy in 2011, shall be clarified. This should achieve both a greater understanding of factors, which were actively involved in the emergence of ethanol through the Policy Act of 2005, and how such factors failed to provide the support necessary to push through a new tax break for the U.S. production of corn-based ethanol.

The stated aims provide the basis for the overall question:

How did the EPL of 2005 (109th Congress – P.L.58, 109th Congress - H.R.6), as specifically related to ethanol in connection with the RFS, manage to achieve placement on the political agenda and reach agreement?

How did the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871, 112th Congress – S.Amdt.476) manage to achieve placement on the political agenda and reach agreement?

Further secondary research questions will be addressed in chapter 2.3.

1.3. Research Scope

The over-all research question makes clear that this thesis is not a critical assessment of the effects of the ethanol provisions implemented in the EPL of 2005 (P.L. 109-58, 109th

Congress - H.R.6) nor the impacts of letting the ethanol tax credit as well as the import tariff on ethanol expire. Instead, it seeks to give insight into the reasons and factors for ethanol being placed in such a favored position in U.S. legislation even before its presence in numerous provisions in the EPOA of 2005. Of further consideration is how soon afterwards, legislative drafts, which called for the reform of ethanol policies, suddenly became political priority.

To adequately deal with these questions, both legislative initiatives need to be traced individually in the form of a case study in order to explain the most influential actors and circumstances, which ultimately had an effect on these two policy processes.

As a result of the large amount of sources that have produced data and literature based on the topic of ethanol and related issues before the implementation of the EPOA of 2005, an all encompassing overview of all aspects included in policy dynamics is beyond the extent of this research. Further, it would be outside the range of this thesis due to the fact that the U.S. ethanol policy field is quite complex with a long history influenced by various policy fields (transport policy, security policy, budgetary and financial policy, agricultural policy, development policy, etc.), a subjective and vast amount of scientific studies and the fact that it is very dependent on domestic and foreign developments.

Nonetheless, this thesis should be able to demonstrate the ways in which energy, environmental, agricultural and political circumstances as well as the scientific community, interest groups and political actors have influenced the attention placed on the idea of ethanol as a possible source of alternative and renewable energy in the United States since the beginning of the 21st century. This should be achieved by examining two key decision events in United States ethanol policy: The “kick-start” of the ethanol industry with the EPOA of 2005 and the ending of a 30-year history of ethanol subsidy, with the Ethanol Subsidy and Tariff Repeal Act.

1.4. Significance of the Study

The relevance of an issue may arise both from a societal and scientific perspective. It follows that a topic is highly relevant when the underlying problem has importance from a social and scientific point of view (Gerring 2001). Socially, a topic is usually relevant when a high number of civilians are affected (King, Keohane, Verba 1994). From this perspective, the current study is of great relevance because ethanol mandates and subsidies have a great influence on the production and consumption of ethanol, which in turn has various socio-

economic impacts. Ethanol mandates and subsidies are a significant distortion of the open market pricing of gasoline and cost the American taxpayer approximately \$21 billion dollars between 2005 and 2011 (Cox 2010). Not only do subsidies increase taxes, but also result in high corn prices that translate into higher meat, milk, and egg prices for the consumer, not to speak of the environmental degradation that has direct or indirect impacts on society (Pimentel 2003).

From a scientific perspective, it is relevant to explain what political dynamics were inherent in the RFS of the EAct of 2005 (P.L. 109-58, 109th Congress - H.R.6) and the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871, 112th Congress – S.Amdt.476), why they were precisely possible at this time and how they differ in their cause and development. According a literature review on this topic, there is barely any research available on ethanol policy change between 2005 and 2011, which is certainly not the case with the period between 1978 and 2005.

A vast amount of literature and studies of policy change in ethanol subsidy legislation either assess the United States Ethanol Policy in the long term from an historical point of view or take the EAct of 2005 as a starting point to conduct a historical case study analysis. The reason why barely any research on radical ethanol policy change between 2005 and 2011 exists has probably to do with the fact that the Ethanol Subsidy and Tariff Repeal Act occurred recently and therefore there has been a short amount of time in which research could accumulate.

1.5. Structure of the Thesis

Now that chapter one has introduced the general topic and defined the statement problem along with the research aims, overall research question, research scope and significance of the study, the structure of the thesis will be given in the form of a detailed breakdown of how the issue will be further elucidated.

In order to adequately deal with the above outlined questions and develop a differentiated and appropriate analysis instrument, chapter two is comprised of the theoretical foundations (framework) and gives a relevant definition to policy analysis and policy process. Additionally, dominant theories on policy change will be introduced and compared and narrowed down to the most relevant theories as applied to the current thesis topic. Kingdon's model will also be introduced. Within this model the multiple streams will be explained as well

as various concepts and associated definitions within Kingdon's conceptualization. Lastly, further sub-questions will be given.

Chapter 3 focuses on the analytical methods and explains how the research's main as well as sub research questions from chapter 2 can be examined. The process of data collection will be described in detail and the chosen form of research for this study – qualitative analysis – will be described.

Chapter 4 will trace the evolution of ethanol and give a brief historical context of ethanol policy in the United States (1970 – 1995) in order to provide a background with which to frame the topic of this thesis.

Chapter 5 will analyze and describe the forces at work in the legislative decision making process, which led to the ethanol related section 1501 (Renewable Fuel Standard) of the EPLA of 2005. Furthermore, an explanation of how and if various contextual forces or streams were coupled within a window of opportunity and what role specific policy participants had in such couplings, will be provided.

The function of chapter 6 is to analyze and describe the forces at work in the legislative decision making process, which led to the passing of the Ethanol Subsidy and Tariff Repeal Act in the Senate. Subsequently, this chapter will analyze the legislative action as related to Kingdon's three streams. Furthermore, this chapter will provide an explanation of how and if these contextual forces or streams were coupled within a window of opportunity and what role specific policy participants had in such a coupling.

Chapter 7, the final chapter, will explicitly address findings that should clearly answer the research questions. This chapter will state explicitly how answers to these questions can be formulated based on the analyses in previous chapters.

2. Theoretical Framework

The development of a theoretical framework is fundamental for scientific work because scientific research should be theory driven. In the opinion of the case study expert, Robert Yin, “the use of theory, in doing case studies, is an immense aid in defining the appropriate research design and data collection. The same theoretical orientation also becomes the main vehicle for generalizing the results of the case study” (Yin 2009: 40).

Therefore, the aim of this section is to develop an adequate framework to unpack and interpret how and why the development and the introduction of the EAct of 2005 (109th Congress – P.L.58, 109th Congress - H.R.6) and the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871, 112th Congress – S.Amdt.476) was possible and which factors drove the agenda setting, policy formulation and resulting policy implementation in the case of Public Law 109-58. To do so, the chapter begins with a brief survey of relevant policy process literature in order to give an understanding of the policy process itself. Then, the chapter will discuss political theory and theoretical models that have the potential to contribute to an objective theory-based causal reconstruction of the emergence and introduction of the EAct of 2005 and the Subsidy Tariff Repeal Act. Subsequently, on the basis of the discussed political theories and models, a theoretical framework was formulated to aid in the facilitation and exploration of issues and actors, which are believed to clarify policy change in the two specific legislative events.

2.1 Policy Analysis

“Policy analysis is finding out what governments do, why they do it and what difference it makes” (Dye 1976: 1). Consequently, policy analysis focuses attention on the content dimension of politics, its development and its implementation. It analyses how political intervention came about, how the relevant programs and measures are structured and which effects they achieved (Klöti 2003: 22). The policy concept is therefore analytically distinguished from that of the political process approach (politics), which puts its focal point onto actors and their interests, and from the conception of polity, which addresses the differences and similarities of various policy areas (Klöti 2003: 22). Even though there are many and often very broad definitions and explanations of the policy concept, it is more than just a synonym for governance. That is thereby to justify that, in the fulfillment of public duties, private actors are often also involved. A more specific and adequate definition of

policy for this study is therefore as follows: “Policy is an indication of a goal, a specific purpose, a programme of action that has been decided upon. Public policy is therefore a formally articulated goal that the legislator intends pursuing with society or with a societal group” (Hanekom 1987: 7)

Given an idea of the aims of policy analysis and outlining the *policy* term, the following sections will focus on central analysis concepts and theories, which are positioning themselves within policy analysis.

2.1.1 Policy Process

The concept is based on the knowledge that the attempt of solving and processing societal problems, so called *policy making*, can be divided into different phases (Jann and Wegrich 2003: 71). Understanding policy as a process that is organized in time and led by a number of specific mechanisms was first introduced by the American political scientist, Harold Lasswell (Porter and Hicks 1995). He explained the policy process in a so- called *stages model of policy*, which is still one of the oldest and most common approaches to the study of the policy process (Porter and Hicks 1995). He already suggested in 1956 to separate *policy making* into seven steps/stages and to analyze each turn (Lasswell 1956). Even though Lasswell’s breakdown into steps - (1) intelligence, (2) promotion, (3) prescription, (4) invocation, (5) application, (6) termination, and (7) appraisal - was quite successful, it was not unmistakably clear and therefore was not fully convincing. One can wonder about the order of the stages, whereas the assessment of a policy is followed by its termination (Schneider and Janning 2006: 75). For better structuring of the questions of conditions and objectives of policies, it was attractive to further develop Laswell’s *stages model* in a more clear and comprehensible way. In spite of many refined and continuous proposed alternative commitments (Rose 1973, Brewer 1974, Mayntz 1977, Jenkins 1978, May and Wildawsky 1978, Hogwood and Gunn 1984), the termination of Jones and Anderson, which was propagated in the early 1970s, has remained the standard up to the present (Schneider and Janning 2006: 75). The simplified theoretical process is generally recognized as follows: (1) Agenda Setting, (2) Policy Formulation, (3) Decision Making, (4) Implementation, (5) Evaluation.

With simplifying the complexity of public policymaking by breaking down the policy-making process into a number of discrete stages, explanatory insights into the decision-making process are offered, making policy process more comprehensible. It was also the analytic

point of departure for much of the more recent work on various essential approaches of policy change, such as the Advocacy Coalition Framework of Sabatier (1988), the Punctuated Equilibrium model of Baumgartner and Jones (1993), and the Multiple Streams (MS) model of Kingdon (1995). Even though the stage approach to the policymaking process served a useful purpose in the 1970s, “beginning in the late 1980s, however, the stages heuristic was subjected to some devastating criticisms” (Sabatier 1999: 7).

Nakamura (1987), for example, portrayed the stages model of the policy process as unrealistic and therefore called it the *textbook approach*. Especially Sabatier and Jenkins-Smith (1993) emerged as prominent critics. They made the subsequent points in a more in depth analysis of what they refer to as the *stages heuristic*:

- a) that it is not really a causal model/theory
- b) that the sequence of stages is often inaccurate or misleading
- c) that it does not provide a clear basis for testing empirical hypothesis
- d) that it reflects a top-down approach to policy making
- e) that it emphasizes the policy cycle as the temporal unit of analysis
- f) that it is unsuccessful in delivering a good option for incorporating learning throughout the course of analysis.

Even so, the *stages model* maintains approval and can still be supported as an instrument or jumping off point, which can aid in the understanding of various components of policy making. But Sabatier and Jenkins-Smith also show that the model fails to provide either a realistic or explanatory account of policy making (Jenkins Smith and Sabatier 1993: 3). “The conclusion seems inescapable: The stages heuristic has outlived its usefulness and needs to be replaced with better theoretical frameworks” (Sabatier 1999a: 7).

As Sabatier states, “Fortunately, over the past twenty years a number of new theoretical frameworks of the policy process have been either developed or extensively modified” (Sabatier 1999a: 7).

2.1.2 Dominant Theories on Policy Change – A Brief Comparison

According to Jones (2003), there have been three major approaches dominating the theories of policy change since the early 1990s. These three approaches are the Advocacy Coalition Framework Approach (ACF) (Sabatier 1988; Jenkins-Smith and Sabatier 1993; 1999), the Punctuated Equilibrium Theory (PET) (Baumgartner and Jones 1993; 1999; 2002; 2005) and the Multiple Streams (MS) model (Kingdon 1984; 1995; 2003; 2011). In the course of the current research for the theoretical part of this study, it became also clear that these three theories are very dominant in the field of policy change. Virtually every study analyzed within this work revolved around policy change and incorporated at least a portion of one of these theories. The common bond among these theories of policy change is that they are based on an example of the individual, how individuals join with one another, coordinate themselves and encourage policy change; therefore, policy change is a result of collective action (Schlager 2007, 302). Nevertheless, each of the theories differ from each other in that they have diverse perceptions of collective action, the policy process itself and focus on different stages of the policy cycle.

The MS theory, for example, gives minimal consideration to the idea of collective action as a development of people working in cooperation towards the goal of fulfilling a common objective. Instead, it utilizes facts related to crucial actors and the point at which they become intersecting variables and decide upon action as the opportunity becomes available. These essential actors can be referred to as policy entrepreneurs and, as Kingdon states, they do not control events, but instead, on some level, have the ability to foresee and alter events to fit their intended needs (Kingdon 1995: 200). Being that the MS theory attempts to understand why certain ideas are placed at the forefront of focus and placed on the agenda while others are overlooked, it concentrates mainly on agenda-setting and decision-making.

Additionally, a policy entrepreneur focuses within the context of the PET, as the decisions made by policymakers become clear influential leaders in the understanding of change. As an alternative to examining the accumulation of events in expectation of change, it takes a reflective view at the no longer existent presence of the collective action as it happened as a way to clarify why history progressed as it did. Of non-importance for the theorist is “how” opposing interests are systematized; instead focus is placed on reports and studies, which highlight the final result of such organization and activity (Sabatier, 2007).

Lastly, the ACF recognizes the internal mechanisms of situations by means of individuals and their value systems centered with their respective distinct actions. The fundamental beliefs of the individual, not situational restrictions, decide coalition dissemination, which is the foundation for shared action, i.e., policymaking. Understanding how coalitions come into existence is not made clear by this theory (Schlager, 1995), but we are able to clearly understand that they are precisely outlined and result in cooperation of activities or action among the actors of the coalition themselves.

2.2 Study Specific Relevant Theories on Policy Change

Even though all three theories have made significant contributions to providing an analytical tool to frame the numerous interactive processes in policymaking, with many actors inside and outside of government involved, the Multiple Streams model was chosen as the base of the theoretical framework for this study. This decision is based on the following reasons:

- a) The first review of congressional hearings showed that the U.S. ethanol policy is fluid, multifaceted, and perplexing. Those involved habitually do not have well-defined objectives and waver when it comes to making decisions. Further, the entire policy progression is so multifaceted that it is inadequately comprehended by most. Hence, scholars have continually called on the MS model as a beneficial approach to analyzing these circumstances of uncertainty. Specifically, the MS model highlights repetitions and elements of certainty within the disorder of public policy development.
- b) It also made clear that, in the case of ethanol, policy makers have not distinctively devised preferences and as a result, opportunity exists for individual and collective actors in the method of policy making. These additional players therefore aid and facilitate the debate on policy issues.
- c) Various authors put forward the idea that the model offers a highly accurate understanding and explanation of the agenda setting process. (Sabatier 1999a; Zahariadis 2007). Kingdom's model of agenda setting allows one to be able to determine which actors and occurrences have advanced an issue, causing it to find a place on the governmental agenda and further a place in public awareness.

- d) Despite Kingdon's model focusing largely on the pre-decision process of the ways in which matters or dilemmas find a place onto the governmental agenda and not on decision development of a formal vote or final decision, Zahariadis demonstrates that in increasing and widening Kingdon's MS model, it is feasible to do more than simply study agenda setting - one can further observe and study complete policy formation development.

Based on the undertaken literature analysis, it is possible to conclude that Kingdon's (1995) MS model offers various explaining variables, which can be assumed to greatly contribute to explaining how and why the development and the introduction of the EPAct of 2005 (109th Congress – P.L.58, 109th Congress - H.R.6) as well as the passing of the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871, 112th Congress – S.Amdt.476) in Senate was possible. Therefore, the next subsequent chapter will extensively deal and explain only relevant theories on policy change for this study, rather than further discussing the advantages/disadvantages of various dominant theories and models of policy change.

2.2.1 The Multiple Streams Model – John Kingdon

2.2.1.1 The Background of Kingdon's Multiple Streams Model

The Multiple Streams (MS) model (Kingdon 1984; 1995) is based on the Garbage Can Model (Cohen, March, Olsen 1972), which originated from organizational sociology.

The presumption is that “collective choice is not merely the derivative of individual efforts aggregated in some fashion, but rather the combined result of structural forces and cognitive affective processes that are highly context dependent” (Zahariadis 2007: 66).

Rather than portraying decision-making in public administration as a matter of rational choice, Cohen, March and Olsen (1972) described it as a process characterized by organizational anarchy. This idea originates from the fact that if policy makers were working from a balanced, all-inclusive model, they would initially distinctly clarify their objectives and determine the levels of attainment of such aims and how to best fulfill them.

However, the model received its widest attention through its adaptation by John Kingdon into the MS model (Kingdon 1984; 1995). Central to this viewpoint is the attention being placed on understanding and conveying the idea of agenda change. Specifically, this includes the

reasons for and justifications of the movement of various issues onto and up the evaluation agendas of government, while other issues receive little to no focused attention. Kingdon approached this issue by specifically examining case studies related to federal policy directed on the topics of transportation and health as well as an extensive collection of 247 interviews with policy makers over the span of four-years. As such, he elucidated a description of policy change, which contains various elements of rationalism and incrementalism, yet also discards the traditional problem-solving and incremental models of policy formation (Cohen-Vogel and McLendon 2009).

2.2.1.2 Kingdon's Conceptualization

Although Kingdon's MS model seems quite complex at first, there are discernable elements capable of being highlighted and used as the starting point for any analysis, which will be pointed out in the next sections.

a) Policy-making

Fundamental to Kingdon's MS model is its conceptualization of policy-making. According to Kingdon, public policy making is made up of at least four important processes:

"(1) the setting of the agenda, (2) the specification of alternatives from which a choice is to be made, (3) an authoritative choice among those specified alternatives, as in a legislative vote or a presidential decision, and (4) the implementation of the decision (Kingdon 1995: 2-30). The key to understanding Kingdon's MS model is to remember that it concentrates particularly on the processes of agenda-setting and alternative specifications because Kingdon attempts to know "not how issues are authoritatively decided by decision makers, but rather how they came to be issues in the first place" (Ibid: 2).

b) Agenda-setting

It becomes apparent from this point that Kingdon's main interest is therefore "to understand the agenda setting in the federal government" (Ibid: 86) and "how and why it changes from one time to another" (Ibid: 3). Kingdon defines the governmental agenda as "the list of subjects to which people in and around government are paying serious attention" (Kingdon 2003: 166). The decision agenda is included as part of the governmental agenda

and describes a collection of items that are fully prepared and set for legislative enactment, executive order, or various other types of functional decisions. This means, in particular, that a subject is more likely to transfer onto the decision agenda, via a vote or executive directive, when a level great enough in the governmental agenda has been achieved (Kingdon 1995: 4). Such subjects of assorted importance transfer both from an active to an inactive state on the governmental and decision agenda. To clarify the subsequent policy change in both governmental and decision agenda, Kingdon posed the theoretical MS model in which the theoretical concepts of agenda-setting and alternatives specifications take a critical position, as they are crucial to whether an issue or problem makes it onto the governmental agenda. Kingdon describes agenda-setting as a process that defines an issue, making it a priority for the government: "Out of the set of all conceivable subjects of problems to which officials could be paying attention, they do in fact seriously attend to some rather than others. So the agenda-setting process narrows this set of conceivable subjects to the set that actually becomes the focus of attention" (Ibid: 3).

c) Alternative Specifications

Understanding why an issue gains precedence on an agenda is of crucial importance, but Kingdon also notes that every issues has a set of potential solutions, which are labeled as alternative specifications. The process of alternative specifications states that once solutions are present, the best most appropriate options will set themselves apart from the other less suitable possibilities via a strict set of guidelines.

Once an issue attains placement on the governmental itinerary, it is from these potential solutions that a final answer must be found if the problem is to remain in the spotlight. If no viable solution exists at the time a problem rises onto the agenda, the problem will in all likelihood be tabled in favor of more pressing issues or ignored entirely until it either goes away or a solution presents itself. Hence, alternative specifications are crucial in reaching a solution. In contrast to agenda setting, which involves highly visible actors and is more in connection with governmental agendas and involves the more political process of actual definition of a problem's existence, alternative specifications involve hidden actors with a more intimate understanding of the topic.

2.2.1.3 The Connection Between Agenda Setting, Alternative Specifications, Participants and Independent Streams

As stated by Kingdon, two significant groups of features exist that could potentially influence agenda setting and the specification of alternatives – participants and processes (Kingdon 1995: 15). The interaction of these two factors, specifically, active participants and the procedures that facilitate how agenda points and alternatives gain importance, establish whether an issue reaches the point of being placed on the agenda as well as whether it remains on the agenda and what standing the issue has reached. Thus, the interaction of participants and processes results in the ebb and flow of issues on the respective agenda.

a) Participants

According to Kingdon, participants are independent of processes and can be classified by two sets of criteria: participants can be both *inside* and *outside* of government, and they can be *visible* or *hidden*. In determining how a participant is to be categorized, it is critical to determine whether they hold formal or informal influence in the realm of policy (Kingdon 1995: 48) as well as whether they “receive a lot of press and public attention” (Kingdon 1995: 68), as hidden participants mostly function out of the spotlight. According to such a distinction, participants can be classified as follows:

- **Inside government:** The Administration, Civil Servants, Congress
- **Outside government:** Interest groups, scientific community, consultants, foundations and think tanks, media, elections-related participants, public opinion

- **Visible:** The president, high-level executive branch officials, prominent members of Congress, political parties
- **Hidden:** Academics, career bureaucrats, congressional staff, lower-level political appointees

To this, he determines with his research that visible participants generally have a stronger affect on setting the agenda, while the generation of alternatives is more greatly affected by the unseen collection of individuals involved, who bring particular areas of expertise, including technical knowledge, to the process.

b) The Processes

It should be clarified that participants as a single entity do not set the agenda and further developments are at work in the determination of policy. Kingdon has recognized three such processes critical to agenda setting: "...streams of problems, policies, and politics " (Kingdon 1995: 19). These three streams make up the mainstays of Kingdon's MS model and are largely independent of one another, but at some point and through various means, such as policy entrepreneurs, the three streams come together resulting in the foundation of a policy window (Kingdon 1995: 182). As such, the agenda and alternatives come together and are subsequently subject to deliberation in regard to a authoritative decision and implementation decision. Further, such a union determines the placement of a specific issue at the forefront of the decision agenda, making it a part of the working dynamic of policy change and a possible catalyst for agenda and policy changes.

As these three streams form the cornerstones of Kingdon's model, it is necessary to give a brief synopsis of each in addition to a concise description of how they come together to make up a policy window. This should be accomplished in two separate parts because, as Kingdon states, the problem, policy and politics stream "are largely independent of one another and each develops according to its own dynamics and rules. But at some critical junctures the three streams are joined, and the greatest policy changes grow out of that coupling of problems, policy proposals, and politics" (Kingdon 1995: 19).

Therefore, the depiction and explanation of the process streams will be divided into two chapters (2.2.1.4 and 2.2.1.5). The first offers separate explanations of each of the streams, while the second involves the connection of these streams.

2.2.1.4 Independent Streams

a) The Problem Stream

The problem stream is made up of numerous situations that policy makers and citizens hope will gain focus. As stated by Kingdon, policy makers become aware of these conditions by redefining them as problems. How various issues are selected for focus over others is mostly dictated by the incidence of indicators, focusing events, and feedback in groupings or alone (Kingdon 1995: 90). *Indicators* are usually used to assess magnitude of and change in conditions or problems.

When the situation is critical or circumstances have become considerably altered, policy decision makers view the issue as a problem (Birkland 2011: 181). Indicators are usually changes in statistics, such as the federal expenditure, consumer prices and the reflections of the effectiveness of subsidy programs. However, these numbers alone say little about which issues gain greater attention and which are placed outside of focus, unless they are interpreted and publicized in studies or reports by interest groups, government agencies, and policy entrepreneurs, who utilize official statistics in a skewed fashion; meaning, data, which points in favor of the desired outcome, is highlighted while opposing data is disregarded (Birkland 2011: 181).

Despite existing markers, such indicators do not necessarily, on their own, hold the influence to elevate an issue onto the agenda. Frequently, they necessitate or are supported by a *focusing event*, in the form of a crisis or disaster, personal experiences, or the presence of powerful symbols (Kingdon 1995: 94). For example, a crisis or a disaster may push a problem onto the agenda, as these cannot go unnoticed. Even though, it does not necessarily guarantee that the problem will have distinction on the policy agenda. This is due to the achievement or lack of success in finding a solution for the issue at hand. In such instances, emergencies tend to be braced by the experienced proficiencies of policy makers and/or the power of symbols, as a politician, who has personal history and involvement with a specific topic or problem, has a higher tendency to pay attention to the topic and the powerful symbols, which draw attention.

Symbols are attention catchers “because they capture in a nutshell some sort of reality that people already sense in a vague, more diffuse way” (Kingdon 1995: 97-98).

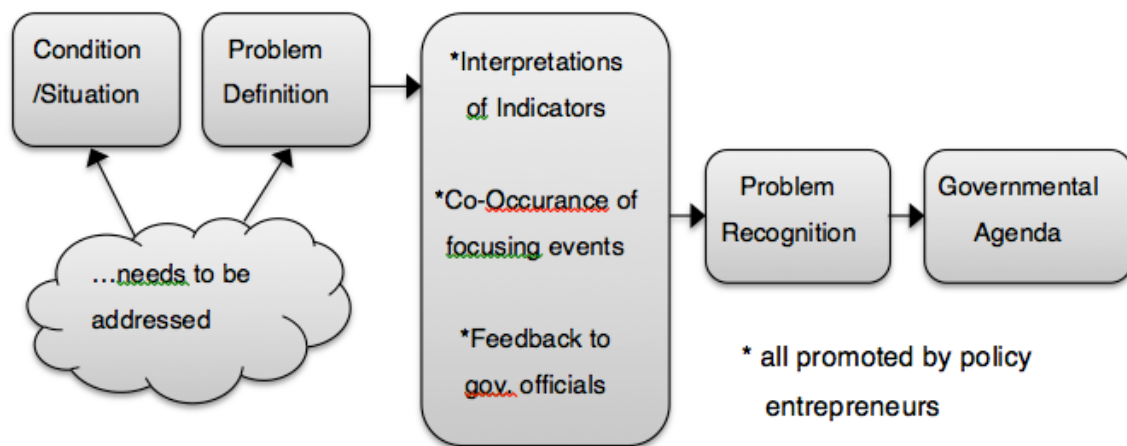
Moreover, *feedback* on existing situations is another means for politicians to realize that a certain problem exists because it helps to highlight “what works and what doesn’t” (Zahariadis 2007: 7). As such, the propensity is for policies to remain unaffected by change and therefore feedback is regularly disregarded until policy makers “are compelled by outside forces either to change their behaviors or go out of existence” (Baumgartner and Jones 2005: 18). With regard to the problem stream, it is also very important to make clear that at the point that an issue is accepted as such, it makes its way onto the governmental agenda, although not the decision agenda. Even so, occasionally, regardless of the presence of indicators, focusing events and feedback, a problem will nonetheless “fade” off the agenda

(Kingdon 1995: 103).

As postulated by Kingdon, problems lose their place on the agenda because it is assumed that they have reached some sort of climax or solution and thus government entities cease to have concern or interest in the topic. From this absence of attention, a deficit of viable proposals or further possibilities exists, perhaps resulting from the issue being too huge or requiring too much effort, a lack of public attention – which is notoriously difficult to maintain - or because there is the absence of the required resources (Ibid: 104-105).

As a result, the method of recognizing an issue correctly does not indemnify that the issue will obtain the needed consideration to make its way onto the agenda; but the presence of one or additional supporting events - like indicators, focusing events, and feedback - strengthens the probability that a place on the agenda will be secured. The chance escalates when an issue is connected to a policy proposal (Ibid: 115).

Figure 2: The Problem Stream



Source: own illustration, based on Carillo (2007)

b) The Policy Stream

The *policy stream* can be seen as the center of policy formulation and refinement. Therefore, this large stream focuses mainly on policy proposals and alternative specifications. Based on what mainly scientists, researchers, academics, think tanks, advocates, public officials as well as interest groups, etc. believe to be the cause of the particular problem, ideas, solutions, strategies and proposals needed to tackle the problem are determined.

Being that each group approaches an issue from an alternative point of view in regard to what makes up an issue and the best way to find a solution, a great variation of ideas, policy

solutions and proposals are formed and then debated, intermixed and altered. Kingdon designates this progression as a *primeval soup* in which a large number of “ideas confront one another [...] and combine with one another in various ways” (Kingdon 2003: 116). The consequence of the resulting exchange of ideas in the soup is a catalog of suggestions that make their way to the forefront of importance at the surface of the soup by meeting various criteria, “as in a natural selection system” (Kingdon 2003: 116). This occurs because due to managing restrictions, the amount of concepts must be tapered down considerably (Zahariadis 2007: 11). Whether an idea in the form of a proposal “bubbles to the top of the stream” (Zahariadis 2007: 11) depends on a few key elements that Kingdon connects with the process of policy formation: the cohesiveness of policy communities, the criteria for survival (value acceptability, technical feasibility, anticipation of future constraints) and the process of softening-up (policy entrepreneurs). Kingdon observes that *policy communities* are made up of experts and specialists in respective policy domains. Despite the fact that these specialists work together regularly, both on a formal and informal level, such actors within each policy community are greatly dispersed (Rushefsky and Patel 1998: 21). The amount of disintegration or togetherness fluctuates from one community to the next, as among specialists that handle the same issues, there tends to be less disintegration. This has important effects because the consequences of high fragmentation in policy communities are often “disjointed policy, lack of common orientation, and agenda instability” (Kingdon 1995: 143). *Value acceptability* “refers to the degree of agreement among major participants in the policy stream” (Zahariadis 2007: 11). It is equally important as the fragmentation of policy communities because a “policy output is more likely to be evaluated as successful if consensus is achieved by those involved in the process of policy input (Zahariadis 1995: 38). This stems from Kingdon’s argumentation that “proposals that survive in the policy community are compatible with the values of specialists” (Zahariadis 1995: 38).

Technical feasibility is also of great importance and concerns the straightforwardness of implementation as well as stresses the need to be aware of the fine points of an issue. Key questions include inquiring as to whether the idea seems to be able to be made reality with minimal problems, whether it can maintain its main objective and whether it can be administered with the available resources? If these questions are addressed and receive a positive outcome, the odds for an idea to maintain presence in the policy stream increase drastically.

Lastly, while these criteria are important, the term of *softening-up* indicates an additional key to the policy stream, which is the emergence of policy entrepreneurs.

As stated above, due to their unease with a specific policy matter, a policy community initiates a good amount of ideas in reference to this issue. These ideas drift around while also joining with others. As a result, policy entrepreneurs attempt to convince those in positions of importance of which proposals are highly important as well as introduce key players to new ideas and options. Kingdon designates this process as ‘softening-up’, as the goal of the policy entrepreneurs is to make more malleable the majority of the public, those in the public directly affected and the policy community itself. The goal is to create an advantageous environment for the recognition of a specific proposal in the event that such issues are given serious consideration by policy makers.

Softening up can be achieved through hearings, speeches, papers, meetings, reports and advisory panels, etc. During this process, the initial idea evolves through reincorporation with other prevailing ideas to generate a new idea that is enhanced and prepared “to enter a serious decision stage” (Kingdon 1995: 124).

All together, these key elements lead with high likelihood to a higher number of supporters. This is of importance because “an idea that has the support of many participants in the narrow policy stream stands a greater chance [of] being adopted than one that doesn’t” (Zahariadis 2007: 11).

c) The Political Stream

Kingdon’s third and final process stream deals with the political happenings of a given country, which take place regardless of the official’s focus on specific problems and regardless of the policy community’s goings-on. The primary actors in this stream are therefore the perceptible government actors – the president, Senate, etc. Rather than coming up with alternatives and solutions, the political stream comes up with agenda items and thus has significant impact on agenda-setting. Kingdon notes three factors that are important in the political stream: national mood, administrative or legislative turnover, and organized political forces (Kingdon 1995: 145).

Kingdon states that, “People in and around government sense a *national mood*. They are comfortable discussing its content, and believe that they know when the mood shifts” (Kingdon 1995: 146). Politicians utilize various means of information dispersal, such as

communications and discussions with activists and interest groups, newspaper editorials and media reporting of public events, in order to identify the idea that goes “by different names – the national mood, the climate in the country, changes in public opinion, or broad social movements.” (Kingdon 1995: 146).

Kingdon adds that the national mood or changes in public opinion exert a very powerful effect on choice. It shapes agendas and outcomes because a shift in climate “makes some proposals viable that would not have been viable before, and renders other proposals simply dead in water” (Kingdon 1995: 149). For Kingdon, *organized political forces* include pressure from interest groups, which he defines as “participants without formal government position” (Kingdon 1995: 45), pressure from political mobilization, for example, citizen initiated movements, and pressure from the behavior of political elites. The element refers mostly to the consensus and conflict among those actors because it is more often the case than consensus. This conflict among those interested parties results in an environment in which political leaders strike an equilibrium between those who support and those who are in opposition of a given proposal and the subsequent presence it may have on the agenda (Kingdon 1995: 151). They do this by weighing the scale of those who back an idea and those who oppose. When officials determine the hurdles in the way of realizing their proposals to be too large to overcome, they essentially step back and cease their endeavors. Therefore, organized political forces are able “to block proposals they do not prefer” (Kingdon 1995: 199).

The last element of the political stream refers to the fact that agendas are also changed by *turnover in major key personnel* as well as by the central government process of jurisdiction. For example, if a new administration or high-level politicians come into power, political options may be altered drastically because they have different priorities from those they replaced and therefore try to push new agenda items (Kingdon 1995: 153). In addition to turnover, there is also the issue of jurisdiction. Normally, a huge influence of constitutions, charters, statutes and regulations is the resulting creation of jurisdictions. The federal agencies involved often stand in jurisdictional competition, as the desire to have control over a possibly important topic is high in the hopes of receiving a positive reputation amongst constituents. These competitions, which Kingdon calls “battles over turf” (Kingdon 1995), sometimes promote the rise of an item onto the governmental agenda or result in a stalemate, which often results in the lack of perceived popularity of an issue (Kingdon 1995: 155).

In addition to the three factors that are central in the political stream, it is also important to distinguish how consensus is built into the political stream. Contrary to the policy stream, where consensus is built largely through the processes of persuasion and diffusion, the political stream's consensus building takes place through a bargaining process. In other words, whereas in the policy stream, the policy community is busy with presenting, conferring, adapting and disposing of various ideas, resulting in a short list of alternatives - which at some point are continuously revisited - in the political stream, participants are busy with trying to establish alliances to defend their interest and concepts. This is because reaching consensus in the political stream occurs not because politicians have merely been convinced of the benefits of following a specific action plan, but because they worry that in not taking part, they will be left out of receiving the advantages of a sharp agenda change (Kingdon 1995: 159-163).

2.2.1.5 Joining of the Streams

"Once we understand these streams taken separately, the key to understanding agenda and policy change is their coupling." (Kingdon 1995: 88). Consequently, with all the essential cornerstones of each stream displayed in chapter 2.2.1.4, this section will illustrate the instance in which the streams merge and the resulting possible consequences. The question then arises of when this will be the case. According to Kingdon, "the separate streams come together at critical times. A problem is recognized, a solution is developed, and available in the policy community, a political change makes it the right time for policy change, and potential constraints are not severe" (Kingdon 1995: 165).

a) Connecting: Coupling, Policy Window, and Policy Entrepreneurs

As shown in chapter 2.2.1.4, each stream usually exists and operates on its own without interference from others. Problems are identified regardless of the presence of problem solving substitutes; proposals are advanced concurring with their own selection course - however, they do not react to issues - and political events take place without linking to problems or further solution options. In this case, the probability that a particular policy proposal will be pushed forward onto the governmental agenda and further be accepted by policymakers is not very likely. However, this changes dramatically when critical change in the problem or political stream provides a *policy window*, or as Kingdon calls it, a *window of opportunity*. In turn, the policy window provides the policy entrepreneurs with the chance to

successfully couple the problem, politics, and the policy stream into one bundle. This is of critical importance because complete coupling of the three streams dramatically increases the chance of fundamental change in public policy. Thus, policy entrepreneurs “play a major part in the coupling at the open policy windows” (Kingdon 1984: 174) “because during the pursuit of their personal purposes, entrepreneurs perform the function for the system of coupling the previously separate streams. (...) Without the presence of an entrepreneur, the linking of the streams may not take place” (Kingdon 2011: 82). Consequently, the term *coupling* involves policy entrepreneurs connecting a prominent problem with a possible solution within an ideal political environment - based on their interpretation of the problem and backed by their political means - resulting in an opportunity for proposal onto the legislative agenda and the emergence of new public policies. However, in most cases, policy windows are unpredictable and happen quite quickly; therefore, policy entrepreneurs need to be organized and have their ideas immediately accessible for presentation, with all related sub-issues documented, and take appropriate action before the window closes (Kingdon 1995: 165).

From the above outlined coupling process, it is clear that policy entrepreneurs need to possess certain skills and characteristics. So, what makes one a successful policy entrepreneur? Kingdon and Zahariadis note that successful or effective policy entrepreneurs have, among other qualities, the characteristic of being persistence and therefore spend more time, money, and energy in pushing pet proposals (Zahariadis 2003). In addition, they have “access to the centers of power”, for example, decision makers and political connections, and together with good negotiation skills, they are able to “employ various strategies to join streams together” (Zahariadis 2003: 69). As stated in chapter 2.2, ambiguity is a fact of U.S. ethanol policy because it is fluid, multifaceted and perplexing. For such circumstances, the MS model “offers a fruitful way to explain how political systems and organizations make sense of an ambiguous world” (Weick 2001, quoted in Zahariadis 2007: 87). “The lens supplies the analytical tools to explore how and under what conditions entrepreneurs manipulate the policy process, not only to pursue their own self-interest, but also to provide meaning to policy makers with problematic preferences” (Zahariadis 2007: 87).

However, as is usual in science, every theory and model has its strengths, limitations and criticisms. The MS model is not exempt from this and therefore the next chapter will contain an accurate assessment of the strengths, limitations and criticisms of the MS model in order to be aware of what can be achieved with it, and what can not.

2.2.1.6 Strengths, Weaknesses and Criticism

The perhaps most cited strengths of Kingdon's model is how it portrays the intricacy, vagueness and uncertainty in contemporary policy developments: "It produces a charmingly irreverent portrayal of agenda-setting and also manages to demonstrate how complexity and chaos emerge from relatively well-known and straightforward aspects of the rational decision process" (Ney 2006: 101). Also, it does not operate from the perspective that policy-making is indeed a logical route for solution attainment; it puts great emphasis on the role of complex institutional interactions and therefore does not ignore the importance of human agency, unlike some structural and mechanical models do (Mucciaroni 1992: 482). Instead of giving the governmental process of decision making rational and logical characteristics, it "views choice as the collective output formulated by the push and pull of several factors (...) and is sensitive to the way information affects choice" (Sabatier 2007: 66). This key strength was also the decisive reason for choosing the MS model as the base of the theoretical framework for this study because the identified characteristics of the US ethanol politics in chapter 2.2 confirm that a total, all encompassing knowledge of all features related to the subject of ethanol, as assumed by comprehensive and rational models, would seem to have been unfeasible for most policymakers in this setting. Further, US ethanol politics can be described as complex and uncertain, which is an additional argument for the MS model because, as stated above, it provides direction and understandability to the intricacy of the method steps via the view of temporal sorting. Further, it offers an adaptable model for investigation of policy that originates from vagueness and uncertainty.

An additional strength can be seen in its universality. Even though the model is based on empirical studies based on federal policy in the United States, Nikolaos Zahariadis showed that it appears to present a framework that is pertinent beyond its design due to its general ability to portray the perplexing character of politics and collective decision making.

Zahariadis' (1992, 1996, 2003) works demonstrate that it can be extended to varying types of government, such as parliamentary democracies, whereas Kingdon only examined what he referred to as the United States' presidential "organized anarchy" method of government. Zahariadis even examined the complete policy formation course, not only agenda setting; and he related it to foreign as well as domestic policy.

However, despite its strength, the MS model is open to a number of limitations, which result mainly from being too indeterminate to provide adequate explanation (Mucciaroni 1992). One of the most debated criticisms (Mucciaroni 1992; Bendor, Moe and Shott 2001) imagined the suitability of intellectualizing independent streams. The critics' other view is more of

interdependent streams, where “changes in one stream can trigger or reinforce changes in another, making coupling much less fortuitous and the process more purposive and strategic” (Zahariadis, 2007: 80). Mucciaroni, for example, argues that “changes in one stream can trigger or reinforce changes in another, making coupling much less fortuitous and the process more purposive and strategic” (Zahariadis, 2007: 81). Even John Kingdon himself proposed the possibility that coupling, or interaction, may take place in the absence of an open window; he also suggests that stream independence is a conceptual device which has the advantage of enabling researchers to uncover rather than assume rationality, for example, the point that solutions are always developed in response to clearly defined problems (Zahariadis, 2007: 81).

A further criticism made by Mucciaroni was that the MS model “does not have sufficient appreciation for historical and institutional constraints on agenda-setting” (Mucciaroni 1992: 459), that it exists at an excessively elevated level of oversimplification, and that the theory is virtually fixated entirely at the situational or temporal stage of investigation and does not sufficiently attend to structural aspects (Mucciaroni 1992). Consequently, rather than seeing Kingdon’s MS model as an approach for conducting empirical investigation, Mucciaroni defines it as a strong and viable heuristic device that “captures much of the complexity, fluidity, and unpredictability of agenda setting and highlights the important role of chance, innovation, and human agency in policymaking” (Mucciaroni: 482).

2.3 Secondary Research Questions

As stated in chapter 1.2, this research inspects two significant decision occurrences of the United States ethanol policy (2005 and 2011) in regard to their positions as political processes influenced by the progression of the issue, policy, and political streams, and frequently definitively influenced by policy entrepreneurs. The main aim of this study is consequently to answer the following questions:

How did the EPAAct of 2005 (109th Congress – P.L.58, 109th Congress - H.R.6), as specifically related to ethanol in connection with the RFS, manage to achieve placement on the political agenda and reach agreement?

How did the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871, 112th Congress – S.Amdt.476) manage to achieve placement on the political agenda and reach agreement?

Nevertheless, it should also be uncovered how in 2005 a law was adopted that established never before seen ethanol policies and then suddenly, in 2011, a bill passed in the Senate that called for the immediate ending of a 30-year ethanol subsidy?

To answer these general questions, more specific secondary research questions were developed focusing on critical roles played by certain actors and the conditions that supported broad-based collective action:

1. What factors caused ethanol's rise to agenda status and accounted for the decision to assure the continued growth of ethanol usage with the EPO Act of 2005 and consequently the decision to enact the Renewable Fuel Standard (which originated with the EPO Act of 2005)?
2. Which factors account for the Senate decision to pass the Ethanol Subsidy and Tariff Repeal Act which demonstrated growing support of the Congress not to extend the 30-year ethanol tax credit in 2011, only six years after adopting never before seen ethanol policies with the EPO Act of 2005?
3. Which actors contributed actively and what interests did they have in section 1502 (RFS) of the EPO Act of 2005?
4. Which actors contributed actively in the Ethanol Subsidy and Tariff Repeal Act?
5. Given the various conditions that existed as related to the RFS discussed, which conditions were defined as problems by policy makers?
6. Given the various conditions that existed as related to the Ethanol Subsidy and Tariff Repeal Act, which conditions were defined as problems by policy makers?
7. Was the RFS a outcome of forceful lobbying and insistence from ethanol interest groups and corn-state politicians?
8. If so, why did ethanol advocates fail to gather the support necessary to push through a new tax break for the U.S. production of corn-based ethanol and why were they unable to block the Ethanol Subsidy and Tariff Repeal Act in Senate, which sent a strong message that the era of big taxpayer support for corn ethanol was coming to an end by the end of 2011?

3. Research Design and Methodology

Methodology can be described as the “overall approach to the entire process of the research study” (Collis and Hussey 2009: 11). Simply, a research design is the rationale that connects the data to be gathered and the deductions to be extracted in the preliminary question stages of a study; essentially, it safeguards soundness. Therefore, the object of this chapter is a description and a justification of the strategy and a presentation of how the research question of this study shall be answered in terms of drawing conclusions from the data available.

In this work, methods are understood as investigative strategies to identify causes. Causes “refer to events or conditions that raise the probability of some outcome occurring” (Gerring 2005: 169). In turn, methods refer to ontologies. Ontologies are understandings or conjectures about the nature of the world as it truly is. It can therefore be stated that ontology is constantly present as all scientific inquires are substantiated in “fundamental assumptions scholars make about the nature of the social and political world and especially about the nature of causal relationships within that world” (Hall 2003: 374). Meaning, methodologies are derived from ontologies and thus dissimilar methodologies are built on unlike ontologies. Accordingly, there is not a “best method” to answer scientific research questions, but that the choice of the method and therefore the investigative strategy is always dependent on the issue in question and thus should be based on a research objective (Hall 2003; George and Bennett 2005; Yin 2003). Thus “the usefulness of any particular method and research design will depend on both the mode of explanation the analyst deems most appropriate and the overarching assumptions made about the structure of causal relations in the cases at hand” (Hall 2006: 26).

3.1 Justification for the Selection of an Explorative Case Study

When looking at the structure of causal relations in political decision-making, it is infrequently as logical as we desire. For example, in the case of the United States’ ethanol policy, as the literature review has shown, human intra dynamics and specific circumstances instead of causal laws have been given particular focus. From the foregoing it can be concluded that a case study approach might be more suitable to adequately deliver the objectives for this study because it “is a method for learning about a complex instance based on a comprehensive understanding of that instance obtained by extensive description and

analysis of that instance taken as a whole and in its context” (GAO 1990: 15), rather than a quantitative cause-effect research design, which underlies the assumption “of casual variables with strong, consistent and independent effects across space and time” (Hall 2004: 387). From this it is clear that case studies are mainly suitable when research is seeking (1) for “how” and “why” questions, (2) when the investigator has little control over events, (3) when the boundaries between phenomenon and context are not clearly evident (4) and when it centers on a current event in depth within some real-life context (Yin 1994; Yin 2009).

When looking at the mode of explanation, Robert Yin maintained that “case studies can be conducted and written with many different motives” (Yin 1994: 15) and that they can be carried out with different objectives. In that context, Yin (2003) distinguishes between “explorative”, “descriptive”, and “explanatory” case studies, whereby each methodology can include either a single or a multiple-case study format. Consequently, the choice of whether or not to use a case study design as well as the case study type chosen by the researcher will finally depend on the study’s underlying research question. Proceeding from the case study typology of Yin, this current study can be classified as an historical exploratory case study because it attempts to grasp what has occurred within a case by observing not only explanatory characteristics, but also considering the surrounding situational factors. The study’s research therefore follows an exploratory rather than a confirmatory / disconfirmatory strategy because prior research on the topic is limited. By examining an under-studied issue, as is the ethanol policy case of the EPOA of 2005 and the Ethanol Subsidy and Tariff Repeal Act, the researcher is given the prospect to investigate the applicable dynamics and deliver the explanatory groundwork for future research (Merriam, 1998).

Nevertheless, while case studies have their strengths, they also bring along specific disadvantages (Yin 2009). While many scholars have acknowledged the certain potency of depth of analysis that such a format of research offers, such as in-depth analysis at the initial investigative phase, they also often engaged epistemological concerns. More precisely, concerns have been voiced that case studies have a deficiency of distinct procedural and technical limitations and that they offer a minimal foundation for scientific generalization (Yin 2009). According to Gerring (2004), this is because “single-unit research designs often fall short in their representativeness – the degree to which causal relationships evidenced by that single unit may be assumed to be true for larger set of (unstudied) units” (Gerring 2004: 348). Such deliberations and disapproval in relation to the approach of case studies need to be considered when deriving assumptions from this current empirical research. Moreover, it

is not the purpose of this research project to make sweeping statements based on quantitative results, but instead to correlate the case of ethanol with the theoretical proposals of the structure postulated by the MS model. “In doing a case study, your goal will be to expand and generalize theories (analytic generalization) and not to enumerate frequencies” (Yin 2003: 10).

3.1 The Cases

The period between 2000 and 2011 saw four key cases of legislation that drastically affected ethanol policy: 1) The American Jobs Creation Act of 2004, which resulted in the VEETC, the provision of a 45 cents tax credit for every gallon of ethanol that oil companies blend into their gasoline; 2) the EPLA of 2005, which included the ethanol specific mandate RFS; 3) the Energy Independence Act of 2007, which included the ethanol specific mandate RFS2; and 4) the Ethanol Subsidy and Tariff Repeal Act, which sent a strong message that Congress was going to let the era of big taxpayer support for ethanol expire by the end of 2011.

To give insight into what reasons and factors placed ethanol in such a favored position in U.S. legislation at the turn of the millennium and how soon afterwards legislative drafts, which called for the reform of ethanol policies, suddenly became political priority of the mentioned legislation, two pieces were specifically chosen as the focus of analysis for this thesis: 1) The EPLA of 2005 and 2) Ethanol Subsidy and Tariff Repeal Act. Why these two cases were chosen is described in the following:

- a) Bio-ethanol production more than doubled over the period of 2000 (1,630 billion gallons) to 2005 (3,940 billion gallons) (RFA 2012). Not coincidentally, this was because ethanol in this period took a very favorable position in congress as a remedy for all problems, which ranged from climate change to air pollution to US dependence on foreign oil, and consequently emerged as an attractive policy option. It is therefore not surprising that this pro-ethanol period witnessed a major piece of legislation – The EPLA of 2005 - that made ethanol the alternative energy source of choice in the U.S. Even though the American Jobs Creation Act of 2004, which introduced the VEETC, was also a major driver at this time, the EPLA of 2005 was chosen for this analysis because it is considered to be the most significant catalyst behind rising fuel ethanol production in the United States. As already stated in the introduction, this

development was primary due to section 1501 of the EPOA of 2005, which obliged the U.S. Environmental Protection Agency (EPA) to create a Renewable Fuel Standard (RFS), creating a specific annual level for minimum renewable fuel use, with ethanol being the main source to achieve this goal. Beginning with 4 billion gallons of renewables in 2006 and increasing to 7.5 billion gallons in 2012, the RFS, as part of the EPOA of 2005, significantly contributed to a further 350% production growth between 2005 and 2011 (RFA 2012).

The EPOA of 2005 therefore was chosen because it marked the beginning of a solid foundation for the growing ethanol industry and facilitated ethanol production to experience further enormous growth.

- b) Despite the RFS basically guaranteeing increased demand in the future, biofuel policy post 2005 began to focus on a somewhat more varied profile of renewables. With high food costs, increasing awareness of environmental problems related to ethanol, and some of the largest extremes in the past century in regard to the scale in agricultural economics as well as the U.S. economy as a whole, the period from 2005 to 2011 turned some political leaders, interest groups and various national news media and local citizens, who formerly supported ethanol, into opponents of ethanol production. Therefore, the mood within Congress towards corn ethanol changed and by early 2011, opinions shifted towards support of a repeal of ethanol subsidies. As a consequence, the Senate voted 73/27 in approval of eradicating the Volumetric Ethanol Excise Tax Credit (VEETC). Even though the Ethanol Subsidy and Tariff Repeal Act was never passed into law because a cloture vote on the underlying bill, S.782, failed on June 21st 2011, it sent a strong message to ethanol proponents that the scheduled expiration of the VEETC and the import tariff by 31st of December, is not likely to happen. Thus, within the context of this thesis, the Ethanol Subsidy and Tariff Repeal Act was chosen for further analysis as it represents the waning support in Congress for the corn-based ethanol industry.

3.2 Data Sources

The empirical material in this case study consists of primary and secondary sources of data for each decision event. The primary sources in this study consist mainly of official documentary data, such as congressional hearings and discussions, and specific reports and

numerous documents issued by federal agencies as well as various congressional Research Service reports that address the broad context of biofuels. Further, primary sources are comprised of specified articles and data issued by a multitude of educational establishments and media outlets.

The method of data collection will be based on primary and secondary document sources. Examples of primary document sources are (1) congressional hearings, (2) specialized reports, such as congressional Service Reports (CSRs), (3) articles published in specialized literature related to energy and renewable energy, (4) policy related books or articles published by educational institutions and (5) documents published by various government departments focusing on such areas as, energy, environment, agricultural, natural resources, etc.

The mostly prevalent use of documentary data should provide facts and data on the interworking of decisions, the participating officials, their respective stances on the topics, their developments in the arguments and a timeline of their actions. Further, the concentrated use of this data should also provide information on institutional, political and social contexts that shaped policymaking dynamics and led to the passing of the EPO Act of 2005 and the Ethanol Subsidy and Tariff Repeal Act.

In addition to these primary source documents, secondary sources, such as books, reliable internet sources, special interest group published material as well as journals articles were used to complete the picture, especially in areas where primary sources were unavailable and where further clarification was necessary. Since the sources are also capable of imparting contextual data about the policy process in describing the cultural and institutional arrangements of both cases as well as giving background information on the policy issue and identifying typical actors involved, they are, so to speak, the second pillar of the analysis. Nevertheless, due to that with qualitative research, “the decision as to which observations to select is crucial for the outcome of the research” (King et al. 1994: 128), reliability of these sources is of great importance. Therefore, a wide range of these source documents have been used because it enabled source data to be substantiated, guaranteed equilibrium, and permitted the inter connecting of references and concepts.

3.3 Qualitative Research Method

Due to the study's aim being to provide an understanding of how decisions regarding the adoption of the Policy Act of 2005 and the passing of the Ethanol Subsidy and Tariff Repeal Act in the Senate came about, qualitative research as a method of ascertaining data was chosen. The decision was based on the fact that "qualitative research aims to explore and to discover issues about the problem on hand" (Domegan and Felimng 2007: 24) when there is little known about the problem or topic. It is therefore useful when uncertainty about dimensions and the characteristics of the problem exist and detailed understanding as opposed to generalizations are pursued, as it "seeks to provide in-depth, detailed information which, although not necessarily widely generalizable, explores issues and their context, clarifying what, how, when, where..."(Tewksbury 2009: 50). Qualitative research thus facilitates an investigation to be managed wholly and in consideration of all relevant factors, instead of reducing them to the interactions of their parts in a narrow context. Being that the approach is unimpeded by a set of preset factors denotes that research endeavors can focus on achieving an entire, multi-faceted vision of the two chosen cases, consequently allocating for the preclusion of the problems of oversimplification, misinterpretation or accommodation, which can frequently ensue through quantitative analysis. Accordingly, a more well defined comprehension of the drives, actions, and reasoning behind ethanol's prominence can be achieved via qualitative research.

Even with the assured characteristic of the method, qualitative data collection is frequently disapproved of for its absence of precision, eliciting inquiries into the legitimacy of results. To construct assurance in qualitative research and conquer issues of validity, King, Koehane and Verba (1994) recommended a methodical and transparent method of analysis. To attain the brand of method that describes a "quality" qualitative method, King et al. (1994) recognized three vital elements: (1) clarity of research processes, (2) numerous sources of data attainment, and (3) an analysis capable of being repeated.

In regard to clarity of research processes, a good amount of attention has been put into place to guarantee an all-encompassing confirmation of the methods utilized to obtain data. Furthermore, the methods by which choices were determined and deductions derived are made clear throughout the paper. By guaranteeing the clarity of the research methods operated within this thesis, readers will be able to ascertain their own judgments on whether the research has been conducted at a level of high quality and with a proper amount of reasoning for the determinations, which have been reached.

In terms of being able to successfully replicate the process of data analysis, King et al. (1994) acknowledged that this is a problematic task and that achievement comes with problems when considering qualitative research. Yet, by allowing readers and fellow researchers to have access to the data in its unanalyzed form, own opinions can be made as to the accuracy of interpretation. As such, direct quotations have been placed in numerous sections of this research so that readers are given the chance to experience the raw data and compare it to the path of thought taken by the author.

The last condition of qualitative research validity is that data be obtained from numerous sources. As stated prior, the evidence applied within this thesis has been amassed from a variety of sources, including congressional hearings and discussions, books, trustworthy Internet sources, special interest group publications, and academic papers. This multitude of information permits the data to be substantiated and as well as allows for consistencies in the data to be recognized.

4. Brief Historical Context of Ethanol Policy in the U.S. (1970 – 1995)

Before describing and analyzing the dynamics of the legislative policymaking process of the EPAct of 2005 with focus on section 1501 (RFS) and the Ethanol Subsidy and Tariff Repeal Act, using the conceptual framework described in chapter 2.2.1, the historical context of ethanol policy in the United States, prior to the analyzed cases, will be briefly illustrated. This chapter thus aims to add to the overall comprehension of the multifaceted situation of justifications and policy rationalities of the United States ethanol policy and consequently also contributes to an extended or deeper understanding of the analyzed cases because, as Kingdon's interviewees colorfully state, "There is nothing new. We are resurrecting old dead dogs, sprucing them up, and floating them up to the top" (Kingdon 1984: 182).

a) Concerns of Energy Security - Gasohol As a Very Promising Measure: 1970-1980

While ethanol has become a substantial motor-fuel element in the United States as of late, it has an extensive past marked by being backed by the White House and the United States Congress. Ethanol, also identified as ethyl alcohol, which is the form of alcohol in alcoholic drinks, was already used in Henry Ford's first vehicles at the beginning of 1900, but its real

inception began in the late 1970s, when the United States endured its first domestic energy crisis (Solomon et al. 2007). The Arab Oil Embargo of 1973 ended 50 years of low oil prices; consequently, the United States observed the ramifications of reliance on imported oil for the first time. This crisis and pressure from the Carter administration to formulate a national energy policy that put more emphasis on increasing energy supplies led to a reexamination of fuel policy and resulted in the first Congressional reply to the petroleum predicament, the enactment of the US Energy Tax Act of 1978 (95th Congress – P.L.618, 95th Congress - H.R.5263), which indicated the start of the existing upsurge of federal programs to back ethanol production (Hakes 2008). It was created to incite growth of gasoline alternatives composed from crude oil by containing a renewable fuel standard, which granted gasoline blended with 10 percent ethanol an exemption the federal gasoline excise tax, which had reached four cents per gallon (CEC 2004: 5). Subsequently, this was the starting point of the topic of increased energy supply becoming the priority of policy efforts at that time. The resulting effort to ensure energy conservation and further domestic renewable energy development was then further strengthened by the second oil crisis in the United States in 1979, which occurred in the wake of the Iranian Revolution, and the 1980 grain embargo, which banned the export of grain and technology to the Soviet Union (CFDC 2007: 5). Further, it led to the implementation of two additional initiatives by the Congress, which were signed by president Carter: (1) the Crude Oil Windfall Profit Tax Act of 1980 (96th Congress – P.L.223, 96th Congress - H.R.3919), and (2) the Energy Security Act of 1980 (96th Congress – P.L.294, 96th Congress - H.R.6807). These initiatives as well gave new hope to ethanol advocates because the Crude Oil Windfall Profit Tax Act of 1980 prolonged the 4 cents per gallon Federal excise exclusion from 1984 to 1992 and gave an income tax credit to alcohol fuel blenders. Additionally, the Energy Security Act of 1980 “insured loans for small ethanol producers [...], price guarantees for biomass energy projects, and purchase agreements for biomass energy used by Federal agencies” (Energy Information Administration 1995: 69). This was achieved by founding a new federally held conglomerate – the Synthetic Fuels Corporation (SFC) - with the backing of a projected \$88 billion in spending budget, of which \$19 billion was to be made accessible to pay for loans, price assurances, and other support to private establishments for the building, setup and maintenance of synthetic fuel plants. Further backing was provided by the Energy Security Act of 1980 spending programs that appropriated roughly \$1.5 billion to the U.S. Department of Energy (DoE) and to the U.S. Department of Agriculture (USDA) (Glozer 2011: 20-21).

Concisely stated, the 1970s represented the decade in which energy problems facilitated a redefinition of the energy situation in the U.S. As a result, the goal of energy independence through conservation and domestically produced fuels achieved quite some prominence. Consequently, it was the recipient of strengthened attention from policymakers and caused them to earnestly contemplate ethanol as a way to accomplish this objective for the first time. Due to the abundance of political support for ethanol coming from the Carter presidency - with the National Corn Growers Association (NCGA) greatly contributing in encouraging such support - the government carried out an ethanol program between 1978-1980 that facilitated situation factors for future advancement (Glozer 2011: 20-22).

b) The Reagan Presidency – Free Market Ideology and Low-cost Oil – Fading of Gasohol
Success: 1980-1990

While the 1970s were drawn by unprecedented skyrocketing oil prices, the 1980s saw a collapse of crude oil prices. Even though OPEC adopted a quota system in March 1983 that was meant to control the volume of global oil production to keep oil prices at higher levels, the lack of consensus among OPEC members, the increasing supplies from non OPEC member states, joined with the decrease in need as a consequence of high prices, led to an extreme fall of OPECs share of the global oil market (Bahgat 2011: 177). As a result, Saudi Arabia, which held the position of swing producer in minimizing its output in an effort to slow the dropping of prices, decided to end its method of selling oil at set price points and connected their oil price to the spot market for crude oil (McNaull 2004: 8). Consequently, Saudi Arabia increased oil production from 2 MMBPD to 5 MMBPD by early 1986, which led crude oil prices to fall from “about \$28 a barrel on 10 December 1985 to \$9 a barrel in July 1986” (Shwadran 1988: 236). As an after-effect, energy security and the goal of energy independence through conservation and domestically produced fuels faded from attention, which was also reflected by Reagan’s National Energy Policy. Driven by free-market energy ideology and based on the assumption that world oil prices would continue to remain low, Reagan rejected the idea “that energy required special policy attention” (Kash and Rycroft 1984: 260). With the intention to phase out market-intervention policies, Reagan’s idea for renewable energy sources did not allow for the inclusion of loan guarantees and gasohol tax concessions, which also explains why Reagan’s administration took swift action to do away with President Carter’s goals of generating two billion gallons by 1985 (Glozer 2011: 28). He made no secret of his strong stance against subsidies or lending

aid or support for ethanol, and, as a consequence, the energy section of the budget, including energy conservation, alternative fuels, and energy information, was cut drastically. This was mainly accomplished by two major achievements of the Reagan administration:

First, driven by the vision that the SFCs role was contradictory to the free-market energy ideology, they achieved to phase out the SFC by initially reducing the \$19 billion funding appropriated to the SFC for subsidizing synthetic fuel projects and by finally terminating the organization in 1986 with the Omnibus Budget Reconciliation Act of 1985 (99th Congress – P.L.272) (Glozer 2011: 28).

Second, Reagan's administration achieved in rolling back a big part of the \$1.5 billion financial aid accessible to ethanol producers via DoE (\$745 million) and USDA (\$525 million) programs. Only one year after the budget was appropriated by the Congress with the Energy Security Act of 1980, did the Reagan administration recommended withdrawing all but \$250 million for loans, loan guarantees, and other financial motivations for alcohol fuels (Glozer 2011: 29).

Nevertheless, despite cutting federal expenses for promoting ethanol, President Reagan backed the concept of sustaining and continuing with the formation of the national highway system. In order to change the highway program, he signed a comprehensive highway bill, the Surface Transportation Assistance Act of 1982 (97th Congress – P.L.424, 97th Congress - H.R.6211). Specifically, this bill increased the gasoline excise tax to 9 cents per gallon and raised the tax exemption for gasohol to 5 cents per gallon. The blender's income tax credit was boosted to 50 cents per gallon for 190-proof alcohol and 37.5 cents for 150-190 proof (Glozer 2011; NSB 2009; EIA 1995). Subsequently, President Reagan signed the Tax Reform Act of 1984 as part of the Deficit Reduction Act of 1984 (98th Congress – P.L.369, 98th Congress - H.R.4170), which raised the gasohol exemption from 5 to 6 cents per gallon, with the overall unchanged at 9 cents for each gallon of retail fuel. The blender's income tax credit rose to 60 cents per gallon for 190-proof alcohol and 45 cents for 150-190 proof (Glozer 2011; EIA 1995). Cutting federal expenses for ethanol, on the one hand, and raising gasohol tax exemption, on the other hand, would be to some extent against the Reagan administration's free-market ideas. But due to strong support from Congress Members of both parties, in particular those speaking for Midwest state agricultural interests, the Reagan administration had to tolerate large upsurges in gasoline tax exemption for gasohol so as to safeguard the passing of wider reforms (Glozer 2011: 30).

Additionally, not included in the President's energy policy, and certainly not typical of the Reagan presidency, Congress in 1988 passed the Alternative Motor Fuels Act (100th

Congress – P.L.494, 100th Congress – H.R.3399), which established Corporate Average Fuel Economy (CAFE) credits for alternative fuel vehicle production. It is estimated that these credits put almost 20,000 flexible fuel vehicles, capable of using 85 percent ethanol gasoline (CFDC 2007), into use, yet many producers exploited these credits to balance out the deficient fuel utilization of other vehicles they manufactured. As a result, the measure was not the most efficient, but speaking in terms of benefits for ethanol producers, it was the most noteworthy at the time (Solomon et al. 2007: 418).

To summarize, the 1980s in contrast to the 1970s represented a decade in which strong government incentives for renewable energy faded and investments to promote ethanol decreased. Consequently, renewables, and in particular ethanol, lost some of its appeal as a key solution for energy and energy security related problems because the oil price re-stabilized at unprecedented low prices levels, and with Reagan's free-market energy ideology, the government was not willing to continue heavy government spending on the funding of alternative fuels in times of economic recession. Even though ethanol plants peaked when the Tax Reform Act of 1984 increased the ethanol subsidy, competition with oil prices, coupled with the lack of government funding, resulted in gasohol losing top market position and the resulting increase in production of unleaded gasoline during this time, allowing only a few ethanol plants to survive. Although the Reagan administration put a stop to the Carter era's focused funding for alternative fuels during the 1980s, the prospects for a new market for alcohol fuels, together with the strong ethanol lobby at that time, led tax exemption for gasohol to see large increases during this decade. Nevertheless, ethanol remained less than one percent of all gasoline in the United States as of 1990 (Shapouri et al. 2002).

c) Greater Energy Efficiency and Environmentally Responsible Development – But No Ethanol Boom to Follow: 1990-1995

Even though much of the legislative agenda in Bush's presidency was inhibited by the inheritance of the Reagan administration's high budgetary deficits, which Bush tackled with additional taxes and stringent new budgetary guidelines to restrain future upsurges in spending, his policy objectives focused not primarily on the greater reliance on energy markets, respectively, the phase-out of market-intervention policies, but were instead devoted to balancing the "need for energy with the need for reasonable prices, [conserving] a safe and healthy environment, maintaining an economy second to none, [and] reducing the

dependence on potentially unreliable suppliers” (Glozer 2011: 34). With the support of the White House, EPA and major groups, such as the US Governor’s Ethanol Coalition (GEC), National Ethanol Vehicle Coalition (NEVC), Renewable Fuels Association (RFA), Clean Fuels Coalition (CFC) etc., joining the growing ethanol lobby, ethanol again became a leading topic in energy and environmental policies of the 1990s (Glozer 2011: 35). An attributable factor to this development was also the concern of declining air quality standards, which was made evident to policymakers through observation by the EPA of air pollution in various major cities. With emphasis on cleaning up the environment and the support of President Bush, Congress voted to revise the Clean Air Act in 1990 (101st Congress – P.L.549, 101st Congress – H.R.3030). The environmental policy made it mandatory that the nine most polluted regions in the country sell reformulated gasoline combined with additives during summer and further mandated that gasoline with higher levels of oxygenates be sold in thirty-nine metropolitan areas that had high levels of carbon monoxide pollution in order to cause it to burn at a cleaner level (EPA 1993: 2). With ethanol and methyl tertiary butyl ether (MTBE) being the top options for realization of the oxygenate requirement at that time, the Clean Air Act of 1990 provided a good starting point for the corn ethanol industry to lobby for further favorable legislations (Smith 2012: 2). An accompanying Energy Security Strategy did not have long to wait; President Bush, at the close of his term as President, signed the legislative apex of his National Energy Strategy - the EPCA of 1992 (102nd Congress – P.L.486, 102nd Congress H.R.776). It was the cornerstone of the Bush administration’s arrangement of an evenhanded program of increased energy efficiency, implementation of alternative fuels, and the environmentally accountable advancement of all U.S. energy resources. Additionally, it consequently supported the previously passed Clean Air Act Amendments. It specifically added to the amplified usage of ethanol blends by necessitating specifically mentioned (predominantly government-held) car fleets to commence the buying of alternative fuel vehicles, such as vehicles with the ability to operate on E85 and E15 (Solomon et al.: 418). Nevertheless, despite these ethanol conducive legislations in the Bush I era, the ethanol industry experienced difficulty during the 1990s due to low gasoline prices, weak corn harvests, the doubling of corn prices and the fact that most of the flexible fuel vehicles relied mainly on gasoline because only a few US petrol stations retailed ethanol (Solomon et al.: 418). Accordingly, US annual ethanol production exceeded 1.1 billion gallons in 1992, but declined from 1.4 billion gallons in 1995 to 1.1 billions in 1996 and therefore stayed at the same production level during the first half of the 1990s (RFS 2012).

5. Policymaking Process of the Energy Policy Act of 2005

The function of this chapter is to analyze and describe the forces at work in the legislative decision making process, which led to the ethanol related section 1501 (Renewable Fuel Standard) of the EAct of 2005. First, a summary of the policymaking decision event will be given and consequently also an overview of legislation presentation, committee tasks, hearings, floor deliberation, consideration of amendments and conference reports leading to the enactment will be conducted. Due to the comprehensive aspects of P.L. 109 - 58, such as national security, nuclear power plants, electricity supply disruptions and other issues not relevant to the ethanol policy formation studied here, and in order to limit the focus on the specifically ethanol related section of the EAct of 2005, the chapter will further identify the events that explicitly scrutinized ethanol and topics associated with alternative motor fuels.

By using the conceptual framework of chapter 2.1.1 and with the main focus being on ethanol related events, which were held from genesis to enactment of P.L. 109 - 58, the policymaking process of the EAct of 2005 will be analyzed in the main section of this chapter. First, legislative action as related to the three streams of (1) problem identification, (2) policy formulation, and (3) political relations will be outlined. Furthermore, the scope of the final section of this chapter is to provide an explanation of how and if these contextual forces or streams have been coupled within a window of opportunity and what role specific policy participants had in such a coupling.

5.1 Summary of the Policymaking Decision Event of the EAct 2005

On August 8th 2005, President Bush signed into law P.L. 109-58, which was introduced on April 18th 2005 by Representative Joe Barton and was passed with remarkable speed by the U.S. Congress on July 29, 2005. The EAct of 2005 contained the historic RFS provision with section 1501 and created a precise yearly level for minimum renewable fuel expenditure, starting with 4 billion gallons in 2006 and swelling to 7.5 billion gallons in 2012. Since the EAct of 1992, this piece of federal legislation was the first major movement in the field of renewable energy and introduces a clear crucial point in the development of the domestic biofuels business. The core of President Bush's comprehensive energy proposal resulted from the National Energy Policy Development Group (NEPDG), which was tasked in January 2001 with creating and progressing "a national energy policy designed to help the private sector, and, as necessary and appropriate, State and local governments, promote dependable, affordable, and environmentally sound production and distribution of energy for

the future“ (NEPDG 2001: VIII). The Task Force was made up of Vice President, Dick Cheney, and the Secretaries of State, Treasury, Interior, Agriculture, Commerce, Transportation and Energy as well as various other cabinet and senior administration-level officials. In order to fully comprehend the issues related to the petroleum, coal, nuclear, natural gas, and electricity industry, the listed participants had ten meetings during three and a half months with representatives and lobbyists of the respective branches of energy production. Of these meetings, none allowed public attendance and participants were only comprised of federal representatives. The initial stage of the venture was to notify the President of present energy allocation issues and adaptations required for the economic policy (GAO 2003). The final outcome of this process was presented in May 2001 in a report titled, *Reliable, Affordable and Environmentally Sound Energy for America's Future*. Cited within this report was the importance of energy efficiency and conservation, the need for wise energy usage as a first challenge for the nation and an outline of 105 energy policy recommendations, all of which formed the basis of President Bush's comprehensive energy proposals, which were sent to Congress for legislative action to implement his National Energy Policy. Specifics are as follows:

Forty-two of them will deal with conservation, with environmental protection, and with alternative fuel development; 35 of the 105 recommendations will deal with creating more supply and modernizing the American infrastructure; 25 will deal with international initiatives to increase energy resources (Bush 2001).

Given the particular conditions from the President's initiatives from early 2001 to the passing of the final Energy Policy Act (109th Congress – P.L.58, 109th Congress - H.R.6) in July 2005, Congress debated the various provisions for roughly four years in a complex legislative process. During this process, two earlier versions of the legislation, the EAct of 2002 (107th Congress – H.R.4) and the EAct of 2003 (108th Congress – H.R.6), died in conference. It is important to acknowledge that the proposal of the EAct of 2002 already included mandates for renewable fuels (2.3 billion gallons of renewables blended into gasoline in 2004; 5 billion gallons by 2012). It was first introduced on the floor of the Senate by Majority Leader, Tom Daschle (D-SD), but the mandates changed during the course of the debates, resulting in the final RFS (4 billion gallons of renewables blended into gasoline in 2006, 7.5 billion by 2012) of the EAct of 2005 (109th Congress – P.L.58: 1069, U.S. 107th Congress – H.R.4: 79). However, the complex legislative process of the EAct of 2005 is evident not only in the revised versions, but also in the number of hearings held on the topic. During the period of time in which the EAct of 2005 was being debated, specifically from July 2000 to July 2005,

52 hearings before House committees and 38 before Senate committees were heard (Johnson 2012: 211).

5.1.1 Exploration of Ethanol Related Legislative Action of the EAct 2005

While many of these hearings fixated on national security, nuclear power plants, electricity supply disturbances and other topics not pertinent to the ethanol policy development studied here, the aim of this chapter is to limit focus on the specifically ethanol related legislative action of the EAct of 2005. Consequently, the events that precisely surveyed ethanol and topics connected to alternative motor fuels will be further identified.

According to Johnson (2012), 15 of the 90 conducted hearings appraised ethanol and matters linked to alternative motor fuels. The names given to these hearings show the situation of ethanol consideration at this foundational step of the legislative procedure:

Table 1: Ethanol related legislative action regarding the EPAct of 2005

Title	Committee	Date	Hearing Nr.
Energy Tax Issues	Senate Subcommittee on Taxation and IRS Oversight; Committee on Finance	July 18th 2000	106-711
Renewable Fuels for Energy Security	Senate Committee on Energy and Natural Resources	July 6th 2001	107-191
Role of Tax Incentives in Energy Policy	Senate Committee on Finance	July 10th/11th 2001	107-267
National Energy Issues, Part 2	Senate Committee on Energy and Natural Resources	July 13th/17th/18th 2001	107-144
Renewable Fuels	House Subcommittee on Rural Enterprises, Agriculture, and Technology of the Committee on Small Business	July 24th 2001	107-21
Role of Tax Incentives in Addressing Rural Energy Needs and Conservation	Senate Committee on Finance	August 24th 2001	107-192
U.S Energy Security: Options to Decrease Petroleum Use in Transportation Sector	House Subcommittee on Energy, Committee on Science	November 1st 2001	107-43
Energy Use in the Transportation Sector	Senate Committee on Energy and Natural Resources	March 6th 2003	108-16
Clean Air Act: Alternative Fuels and Fuel Additives	Senate Subcommittee on Clean Air, Climate Change, and Nuclear Safety of the Committee on Environment and Public Works	March 20th 2003	108-300
Rural Economy, Renewable Energy, and the Role of Our Cooperatives	Senate Committee on Finance	August 26th 2003	108-457
What are the Administration Priorities for Climate Change Technology?	House Subcommittee on Energy, Committee on Science	November 6th 2003	108-35
Renewable Energy and the Rural Economy	House Subcommittee on Department Operations, Oversight, Nutrition, and Forestry of the Committee on Agriculture	March 15th 2004	108-26
The EPAct of 2005	House Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce	February 10th/16th 2005	109-1
America's Energy Needs as Our National Security Policy	House Subcommittee on Energy and Resources of the Committee on Government Reform	April 6th 2005	109-14
Agriculture's Role in a Renewable Fuels Standard	House Committee on Agriculture	July 21st 2005	109-12

Source: own illustration, based on Johnson (2012)

These hearings provide a substantive section of the analysis and are therefore a very important part of the current research. Specifically, they focus on the most central discussions and topics of ethanol associated policy making at the time. Such hearings also elucidate on the numerous actors that were present in debates and dialogues that took place in political conversations related to ethanol policy.

5.1.2 Exploration of the Sections in the EPOA of 2005 as Related to Ethanol

However, the successful marketing of ethanol inside and outside of Congress not only led to section 1501 within the EPOA of 2005, which was specifically related to ethanol, but also other sections, which influenced and were associated with section 1501. Essentially, the implementation of the RFS within the EPOA 2005 was a result of the additional sections that deal with renewable fuels in that various actors only advocated for the RFS under the conditions of other sections realized in the EPOA of 2005 and vice versa. Therefore, this section will briefly illustrate and outline the sections that are directly related to the topic of this thesis in reference to ethanol development within the EPOA of 2005.

a) Section 1501 – Renewable Fuel Standard (RFS)

This section included the use of renewable fuels over a specific time period. The RFS as part of the Policy Act of 2005 necessitated that gasoline distributed by refiners, importers and blenders include a growing quantity of renewable fuel, such as ethanol or biodiesel, beginning at 4 billion gallons in 2006, rising each year by 700 million gallons, and culminating at a level of 7.5 billion gallons in 2012. After 2012, it was stated that renewable fuel production must expand at least on the same scale as gasoline production (SECO n.d.).

b) Section 1506 – Oxygen requirement of the CAA eliminated

This section revised the Clean Air Act to remove the reconstituted gasoline oxygenate standard. However, the bill's RFS successfully dictated the use of ethanol, and the section did stipulate for the continuation of air quality requirements. Ethanol will endure as a utilized octane enhancer to meet air quality benchmarks and as a fuel extender (SECO n.d.).

c) Section 1341 – Alternative motor vehicle credit

Provisioned a tax credit to purchasers of innovative alternative fuel vehicles put into use after January 1, 2006. The IRS Notice 2006-54 prolonged the Qualified Alternative Fuel Motor Vehicle tax credit to vehicle adaptations. This specification replaced the Clean Fuel Vehicle Property Tax Deduction (SECO n.d.).

d) Sections 1345,1346,1347 – Small ethanol producer

These sections extended the meaning of a small ethanol producer to also refer to plants of up to 60 million gallons per year capacity. Additionally, they established production motivation of 10 cents per gallon on the initial 15 million gallons of ethanol generated on a yearly basis (SECO n.d.).

e) Section 1342 – Infrastructure tax credit

The infrastructure tax credit section provided a 30 percent tax credit, up to \$30,000, for the putting in place of alternative fuel stations. Purchasers of residential refueling equipment could obtain a tax credit for \$1,000 (SECO n.d.).

f) Sections 701, 1831 – Regulated federal fleets

Sections 701 and 1831 necessitated federal fleets to make use of alternative fuels in dual-fuel vehicles except in the event a waiver is established. It is possible to give a waiver if an alternative fuel is not realistically accessible to the fleet or the cost of the alternative fuel is excessively more cost intensive than conventional fuel (SECO n.d.).

5.2 Problem Stream

For Kingdon (1995, 2003, 2011), the problem stream directly correlates to the area in which valid problems can be recognized. Consequently, it is within this stream that various social circumstances are identified as issues by policymakers. According to Kingdon (1995, 2003, 2011), this can transpire because specific markers demonstrate an incidence of change in focusing events, emergencies or symbols, and through typical feedback procedures.

Employing such devices, this section follows the development of energy, environmental, and agricultural circumstances, which were recognized as significant issues by policymakers.

5.2.1 Environmental Conditions & Problems Identified

a) Declining Air Quality: An Opportunity for Ethanol As An Oxygenate

As highlighted in chapter 4c, a key area requiring attention in early 1990 was the deterioration of air quality criteria. This is also reflected when searching Congressional Records, in that the search results returned for the time period between 1989 through 1990 are extensive. For example, Congressman Michael A. Andrews (D-TX) pointed out the “need to clean our air” in his speech in the House of Representatives:

Mr. Speaker, in my home of Houston, there is a brown haze that often hangs over the city's skyline. We have an air pollution problem--one of the worst in the country. In fact, Harris County rivals the infamous Los Angeles in smog pollution. Recent studies show that even New York has better air quality than we do.[...]As these points illustrate, we definitely need a plan that emphasizes alternative fuels while taking steps to clean up our air . The best opportunity to do so is the Clean Air bill now before Congress (Andrews, U.S 101st Congress 1990: 649).

Another example of many was Senator Liebermann's (I-CT) speech, which was held in the Senate, and in which he highlighted the health effects of air pollution and called for the need of a strong Clean Air Act:

Today I want to talk about the invisible threat of air pollution, and how it affects our health, and particularly those most at risk in our society: our children, our elderly, people with respiratory and heart diseases, and pregnant women. [...]In short, the threat to society from air pollution is not simply that our lakes and forests will die--as devastating as those losses will be. The ultimate threat is to ourselves, and that is why we need a strong Clean Air Act for American. (Liebermann, U.S 101st Congress 1989: 3496)

With air pollution having such high awareness in and outside Congress and building on various Congressional proposals during the 1980s, the Clean Air Act of 1992 was adopted and determined the Oxygenated Gasoline Program and the Reformulated Gasoline Program (RFG). The goal of these programs was to decrease urban pollution by demanding that motor vehicle fuels in the stipulated control regions contain oxygenates, which would cause them to utilize fuel at a cleaner level, thus lessening toxic tailpipe fumes, mostly carbon monoxide (EIA 2000). They were initially mandated in November 1992 to have an Oxygenated Gasoline Program – necessitating that oxygen be added at least at a 2.7 weight percent level, equal to 15.0 volume percent MTBE or 7.4 volume percent fuel ethanol – in progress by winter 1992 and thereafter meet the requirements of the first phase of the RFG program in 1995. These recruitments were stated because RFG, according to the Clean Air Act of 1990, must contain at least 2.0 percent oxygen from alcohol or ether, which goes along with roughly 11.7 volume percent MTBE or 5.8 volume percent ethanol (EIA 2000). In Ethanol related hearings and subsequent debates related to the Epact of 2005, many pro ethanol Congress members, including those from the Corn Belt States, utilized the problem of declining air quality as a point of reasoning in that ethanol use has the advantage of providing a solution to this environmental problem. Specifically, they rallied around the following point:

[...] the environmental benefits of ethanol have been proven time and time again. Ethanol adds oxygen to gasoline helping it burn more completely, significantly reducing tailpipe emissions. The use of ethanol in reformulated gasoline reduces carbon monoxide tailpipe emissions by 25 percent and dilutes other harmful components found in gasoline (Corzine, U.S 109th Congress 2005: 69).

Besides declining air quality and the resulting measures of the Oxygenated Gasoline Program, and the Reformulated Gasoline Program being a good basis for arguing for the further use of ethanol in the EPA Act of 2005, both MTBE and ethanol - being the two oxygenates most commonly used to meet the oxygen requirement of the Oxygenated Gasoline Program and the Reformulated Gasoline Program at that time – where the top options, placing ethanol at the starting block of its rise to importance.

b) Detections of MTBE in Ground Waters and Reservoirs: Ethanol As An Attractive Substitute

However, even though the concern of the declination of air quality standards and its consequential policy initiatives altered the prospective position of ethanol from being a alternative to typical gasoline to that of a significant gasoline additive, ethanol continued to be confronted with trouble in the market, as it was not the most inexpensive oxygenate capable of reaching the stated conditions of the Clean Air Act of 1990. This designation belonged to MTBE, as it had already reached extensive use as a result of fuel suppliers, who had since the 1970a been mandated to eliminate lead from gasoline. MTBE was less expensive to make, and capable of being generated and combined with gasoline at the refinery. As well, MTBE-blended fuel could be transferred along already in place pipelines at no added expense (Glozer 2011: 38). Thus, due to this competitive drawback, upwards of 85 percent of RFG included the oxygenate MTBE and nearly eight percent included ethanol (BRP 1999: 1). While MTBE production increased from 83,000 in 1990 to 161,000 barrels per day in 1994 (EIA 2000), ethanol production rose from 59,000 in 1990, to 88,300 barrels per day in 1994 (own calculation, based on RFA 2012). Nevertheless, the tide began to turn when an increasing amount of research identified MTBE in ground water across the country, which also clearly induced worry of MTBE's role in ground and surface water pollution. Opinions initially began to sway when increased levels of MTBE were discovered in the city of Santa Monica and in other areas of California. As a consequence, Senator Boxer (D-CA) highlighted the potential risk of MTBE and called for the need to search for possible federal administrative and legislative solutions in a Committee Field Hearing on Possible Water Pollution by MTBE in December 1997:

The potential risks of MTBE came to my attention in February 1996, when I met with Mayor Pam O'Connor of the City of Santa Monica. High levels of MTBE contamination had been discovered in City of Santa Monica drinking water wells. The suspected source of the contamination was nearby underground gasoline storage tanks and fuel pipelines. Santa Monica has now lost over 70% of its local drinking-water supply. The City needed help from EPA in tracking down the source of the contamination and coordinating cleanup of the contaminated wells.[...] Let me reassure you all here today that we are looking for answers to the challenges faced by California and other states due to MTBE use. This is the beginning of a close examination of how the federal government can play a constructive role in dealing with the MTBE problem. MTBE will be closely scrutinized by Senator Chafee, Chairman of this Committee, and other members in future hearings. We need to search for possible federal administrative and legislative solutions (Boxer 1997).

In addition, Senator Richard Mountjoy (R-CA) enacted Californian Senate Bill 521 (1997), which was approved by the Governor on October 8th 1997. In an effort to assess and conduct research on the health and environmental repercussions of MTBE, it presented \$500,000 to the University of California. The result was a multi-volume report - *Health & Environmental Assessment of MTBE* - in December 1998, which advised for a steady phase-out of MTBE from gasoline in California, with the inclusion of a list of proposed possibilities for completion of this undertaking (Keller et al. 1998). At the same time, the EPA also reviewed information on the currently known health effects regarding MTBE in its 1997 published *Drinking Water Advisory*. Senator Boxer (D-CA) further contacted EPA Administrator, Carol Browner, to request that the EPA institute an emergency drinking water criterion, research the destructive consequences of MTBE on underground storage tanks, evaluate the health hazards linked with exposure to MTBE, and advance a strategy to systematically end the use of MTBE (ITC 1999: J-1). As a consequence of these events, EPA Administrator, Carol M. Browner, appointed the Blue Ribbon Panel on Oxygenates in Gasoline in order to offer impartial counsel and proposals on avenues to uphold air quality while defending water quality. The final report of this panel, titled *Achieving Clean Air and Clean Water*, was published in September 1999 (BRP 1999). Among many other commendations, this report also included the recommendation to “reduce the use of MTBE substantially (with some members supporting its complete phase-out), and action by Congress to clarify federal and state authority to regulate and/or eliminate the use of gasoline additives that threaten drinking water supplies” (RPA1999: 6).

As reports of contamination and scientific proof of the risk of MTBE spread in 1998 and 1999,

and with the results of the UC study at hand, Governor Gray Davis (D-CA) of California passed an executive order on March 25th 1999 to phase-out MTBE use in the state of California by December 31st 2002 (Executive Order D-5-99). With California consuming approximately 32 percent of the Nation's MTBE at that time (EIA 2003: 1) and 70 percent of California's sold gasoline being subject to the federal RFG program, that in terms of the eventual phase-out of MTBE would be oxygenated with ethanol exclusively, Governor Gray (D-CA) also requested the following in a letter to Carol M. Browner on April 12th 1999:

[...] that the U.S Environmental Protection Agency (U.S. EPA) take prompt action to waive federal requirements that all gasoline sold in the Sacramento region and most of Southern California contain a minimum oxygen content pursuant to the provision of the 1990 amendments to the Clean Air Act" (Davis 1999: 2), because "relying on ethanol exclusively for this volume of gasoline, approximately 10 billion gallons per year, would increase the time needed to complete our phase-out of MTBE, and result in higher fuel costs to California consumers (Davis 1999: 2-3).

The EPA was sympathetic with the determination of Governor Davis (D-CA) - who led the respective regulatory entities to create and put into motion a strategy to commence an abrupt phase out of MTBE from California's fuel supply - but denied his requested waiver from the oxygen requirement with the justification that "California ha[d] not clearly demonstrated the impact on smog that would occur from a waiver of the oxygen mandate" (EPA 2001: 2). The shift from the EPA being opposed to measures designed to reduce use of MTBE until late 1998 to joining the bandwagon on phasing out MTBE and evolving their position was also very clear in the Press Conference, given by Environmental Protection Agency Administrator Carol M. Browner on March 20th 2000:

Today I am here to deliver a very simple but important message: It is imperative that we significantly reduce or eliminate the fuel additive MTBE from gasoline and boost the use of safe alternatives like ethanol in order to protect U.S. water supplies and to preserve air quality benefits." [...] MTBE is a problem that must be addressed. If we delay too long, the problem will become worse (Browner 2000).

In this speech, EPA Administrator Browner also revealed the launching of supervisory action under the Toxic Substances Control Act (TSCA) to greatly lessen or all together eradicate the practice of MTBE usage in gasoline while concurrently sustaining clean air benefits. The petrochemical industry, of course, fiercely resisted this action while the ethanol industry prepared and organized a huge endeavor to sway Congress to phase out MTBE and necessitate a huge proportion of fuels to be derived from renewable sources.

As a result, a long lasting battle over the nationwide phasing out of MTBE was held in Congress. Nevertheless, after months of intense negotiations, the Senate Environment and Public Works Committee passed S.2962, after several mark-ups, on September 28th 2000. The bill was introduced by Chairman Bob Smith (D-NJ) and is therefore also known as the *Smith Bill*, and called for the (1) ban of MTBE in 2004, (2) the allowance of the governor of a state to request a waiver from the oxygen mandate, (3) the creation of a Clean Alternative Fuel Program to take the place of the reformulated gasoline oxygen content mandate and contain a renewable fuel content condition that would have in all likelihood increased threefold the need for ethanol over the course of 10 years and, lastly, (4) the use of Leaking Underground Storage Tank (LUST) trust funds for reimbursement of MTBE pollution (NEIWPC 2001: 19). Even though President Clinton weighed in on the MTBE phase out by directing a letter to Senate Majority Leader Trent Lott (R-MS) and Minority Leader Tom Daschle (D-SD), urging them “to address the threat posed by the fuel additive MTBE to drinking water supplies in many areas of the country” (qtd. in Cole 2000) and informing them that the bill “is consistent with my [Clinton’s] administration’s principles and it represents a positive step forward” (qtd. in Cole 2000), with the change in government, President Bush reversed the plan of the Smith Bill to Phase out MTBE nationwide. The *Smith Bill* was dying a slow death due to “the Bush administration decid[ing] to leave the issue to Congress, where it [w]as bogged down over a proposal to shield the oil industry from some lawsuits” (Yost 2004: A4). This proposal, also called *safe harbor*, can be seen as the oil and gas industry’s reaction to the success of federal lawsuits against them. It introduced a waiver in the House energy bill that would relieve MTBE producers and suppliers from the accountabilities they were being subject to at the judicial level. Further, it was initiated by the House Majority Leader, Tom DeLay (R-TX), supported by Representative, Joe Barton (R-TX), and recommended in opposition to the president’s desires, despite DeLay being notorious for his reprisal against individuals and groups who did not back the legislative plan of President George W. Bush. Despite the *safe harbor* provision being dropped from the final energy bill – the EPAct of 2005 - it had the effect that the proposal to ban MTBE nationwide was quietly shelved due to disagreements in Congress over who should pay for the cleanup of the MTBE contaminations. The refusal of Congress to ban MTBE nationwide, of course, was not in favor of the ethanol lobby. This is clearly shown by the fresh effort put into banning MTBE nationwide and the opportunity arising from such action. Todd Sneller, the Administrator of the Nebraska Ethanol Board, for example, said the following in this connection:

[I see] this as more of a lost opportunity for ethanol rather than an MTBE win. [...] In my view, this was a missed opportunity for ethanol and deprives ethanol of a real chance of expansion (qtd. in Gantz 2000).

Nevertheless, it turned out quite differently, as even though the oil and gas industry could avoid a nationwide ban of MTBE by successfully lobbying home state congressmen, they could not prevent product defect lawsuits from being brought against them. Further, they could not avoid independent state action, which resulted in 17 states, by mid 2004, following California's lead and banning MTBE statewide:

Table 2: State Actions Banning MTBE

State	Date of adoption	Complete or partial ban?	Phaseout date
CA	October 9th 1999	Complete	December 31st 2002 (originally) December 31st 2003 (delayed to)
MN	Early 2000	Partial/then complete	July 2nd 2000 (partial) July 2nd 2005 (complete)
NE	April 11th 2000	Partial	July 13th 2000
IA	May 11th 2000	Partial	July 1st 2000
CO	May 23rd 2000	Complete	April 30th 2002
NY	May 24th 2000	Complete	January 1st 2004
CT	June 1st 2000	Complete	October 1st 2003 (originally) January 1st 2004 (delayed to)
MI	June 26th 2000	Complete	June 1st 2003
SD	February 28th 2001	Partial	July 1st 2001
KS	April 19th 2001	Partial	July 1st 2004
WA	May 10th 2001	Partial	January 1st 2004
IL	July 24th 2001	Partial	July 24th 2004
IN	March 14th 2002	Partial	July 24th 2004
KY	April 23rd 2002	Partial	January 1st 2006
OH	May 29th 2002	Partial	July 1st 2005
MO	July 11th 2002	Partial	July 31st 2005
WI	August 11th 2003	Partial	August 1st 2004
ME	April 14th 2004	Partial	January 1st 2007
NH	May 27th 2004	Partial	January 1st 2007

Source: own illustration, based on EPA (2004)

What Todd Sneller could not have guessed was that in 2000, with the increasing amount of states outlawing MTBE in gasoline and with mounting fears regarding the liability risk of not being able to achieve the liability security that MTBE blenders were pursuing, the industry would handle this unsuccessful legislative resolution as an understood prohibition on

MTBE and began to phase-out MTBE almost completely, despite there not being an active nationwide mandate. Considering the numerous limitations on gasoline makeup that existed at the time, such overt and implied MTBE bans represented real ethanol mandates in RFG municipalities as well as in municipalities required to follow the minimum oxygenation conditions during winter months. This resulted in the amplified demand for ethanol (Anderson and Elzinga 2012: 8). In fact, the described development above caused increased ethanol production that was even greater than the ethanol mandates of the initial Senate-passed fuels provisions of the EPOA of 2002 at that time. This, of course, was an important issue and argument in the ethanol debate related to the EPOA of 2005 simply because, as Senator Charles Grassley (R-IA) of Iowa states, “as we anticipate the 5 billion gallon mandate [the question] is whether or not the ethanol industry can reach [and produce] that mandate” (Grassley, U.S 108th Congress 2003: 21). And by this justified question, the ethanol lobby and, specifically, Bob Dinneen, President and CEO of the Renewable Fuels Association (RFA), could fully take advantage of the situation and argue for the implementation of a RFS in the proposed Energy Policy Act. He highlighted in many hearings, which addressed specifically the ethanol mandates in the Energy Policy Act, the following:

We can absolutely produce the volumes that are going to be required under a renewable fuel standard as currently contemplated in the senate energy bill. I would suggest to you as well that the schedule that is currently contemplated does not at all reflect the growth in the industry that has occurred. Under the current schedule, the RFS would require 2.6 billion gallons of ethanol to be sold in 2005. While, Mr. Chairman, we’re going to be producing close to three billion gallons this year alone (Dinneen, U.S 108th Congress 2003: 21).

Ethanol opponents used the development described above for a different argumentation. Bob Slaughter, the President of the National Petrochemical and Refiners Association (NPRA), for example, argued that the “EIA and other policy analysts also predict[ed] a large increase in ethanol markets in coming years, without a mandate” (Slaughter, U.S 108th Congress 2003: 61). Essentially, being that there was a “scarcity of quality gasoline blend stocks, ethanol ha[d] a bright future without any need to resort to the dubious policy of a national ethanol mandate” (Slaughter, U.S 108th Congress 2003: 61).

Nevertheless, the detection of MTBE in ground water and reservoirs was definitely a definite fact in favor of those lobbying for ethanol. This is simply because an ethanol market was created by the RFG, yet was dominated by the use of MTBE. However, this competition ended when effort was put forward to place focus on the groundwater and reservoir

contamination caused by MTBE. According to Macdonald, vice president for planning and strategic development for Methanex – a leading producer of methanol - a further crucial aspect was to “eliminate the competition which include[d] a very deliberate attack on the MTBE business by the ethanol lobby” (qtd. in ICIS 2002). Next, as further stated by Macdonald, it was important to “create a market for ethanol, and that is what the reformulated gasoline (RFG) requirements and an earlier attempt [at] the renewable fuels standard was” (qtd. in ICIS 2002). With the market and production of ethanol already in place, which not only met, but exceeded RFS mandates of the time, it was easier to argue for the final implementation of the RFS in the EPAct of 2005, as ethanol proponents could already show that they were capable of fulfilling a suddenly increasing demand for ethanol. Further, being that the proposed RFS mandates with the ethanol production at the time of discussion had already been met, this showed that the realization of a RFS mandating 5 billion gallons of renewables blended into gasoline by 2012 was clearly achievable.

c) Global Warming: Ethanol As An Attractive Solution

Even though declining air quality and detections of MTBE in ground waters and reservoirs were without question the most significant environmental problems highlighted during the ethanol related debate of the EPAct of 2005, rising greenhouse gases were also indicated as a problem and were linked with renewables from biomass as potential solutions during debates and hearings. With an wide variety of national and global actors and groups dealing with the ramifications of global warming and greenhouse gases (GHG), beginning with the first Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) in 1995, a heightened acknowledgment of the necessity to lessen anthropogenic GHG emissions became an international topic as well as in the United States, as evident by the plethora of discussions on the topic, which took place in Congress and can be found when searching congressional Records, especially during the time period 1997 to 2000. With most of the economically developed countries agreeing on the Kyoto Protocol, at the Kyoto Conference held in December 1997 in Kyoto, which outlined a reduction of emissions during the first *budget period* from 2008 to 2012, the United States also conditionally dedicated itself to the lowering of its GHG emissions by seven percent by 2012 comparatively to its 1990 GHG emissions level. But due to several studies performed by the U.S Department of Energy’s Energy Information Administration and other leading independent economic consulting firms that were showing consensus on a high cost associated with meeting the Protocol’s target, most of Congress was not very happy with this

course of action: “The U.N. treaty on climate change that was negotiated in Kyoto, Japan last December is a bum deal for this country. If ratified, this overreaching agreement would result in fewer American jobs, higher prices, a lower standard of living, and it will not reduce emissions. [...] Congress must not allow this to happen. We must fight to defend our economic interests and we must fight to protect the integrity of the legislative process” (Knollenberg, U.S 105th Congress 1998). Consequently, with the official reason of the supposed cost of \$325 billion per annum to the US economy (Nordhaus and Boyer 1999), especially in the light of the development in the American economy and subsequent carbon emissions over the last decade, the US decision on the Bonn and Marrakech Conferences of the Parties, was to not ratify the Kyoto Protocol. Instead, the United States decided to follow a different path in terms of a global warming strategy. On February 14th 2002, President Bush declared his alternative Climate Change Policy to the Kyoto Protocol, pledging to limit the U.S. greenhouse gas emission total amount by 18 percent by the year 2012, which directly relates to a lessening of GHG emissions by more than 1.833 teragram CO₂ Eq. in total GHG decreases between 2002 and 2012 (U.S. Department of State 2007: 60). With the following U.S Climate Action Report (U.S. Department of State 2002) indicating that “overall, the transportation sector consumed slightly over 25 quadrillion Btus in 1998, accounting for approximately one-third of U.S. greenhouse gas emissions”, that this “efficiency drive[s] energy consumption and greenhouse gas emissions in the transportation sector” (U.S. Department of State 2002: 22), and that President Bush’s Climate Change policy included measures of emission reduction agreements with particular attention to reducing transportation emissions, ethanol proponents were again provided with the opportunity to highlight ethanol as a *one-shot* solution for a series of environmental problems. This option was exercised during hearings, for example, through James Moseley, Deputy Secretary of the U.S Department of Agriculture (USDA) and Leon Corzine, President of the National Corn Growers Association (NCGA). They highlighted that “agricultural oils are very energy efficient to convert to energy,” that “the added benefit of reduced greenhouse gas emissions [is] much lower than using the petroleum based fuel” (Moseley, U.S 108th Congress 2004: 12), and that “a recent study by the Argonne National Laboratory notes that in 2003, ethanol use in the U.S. reduced greenhouse gas emission by approximately 5.7 million tons, or the equivalent of removing the emissions of 853,000 cars from the road” (Corzine, U.S 109th Congress 2005: 69).

5.2.2 Agricultural Conditions & Problems Identified: EPAct of 2005

In addition to the environmental problems described above, agricultural conditions were also identified and highlighted as problems during these debates.

a) Growing Cost of Federal Farm-Subsidy Programs and the Increasing Federal Deficit

As corn and wheat prices were reaching never before seen numbers and exports were being projected to increase in the anticipatable time ahead, the situation presented itself as positive for farmers in 1995. The prosperous period for farmers and the fact that legislators in the Congress were being presented with limitations due to strict budget shortfalls caused the situation to be unsustainable for those in Congress in regard to the backing of federal farm subsidy programs, which provided subsidy in relation to crop prices and planted acres (Scott 1999: 1). Consequently, farmers were offered a deal with the Farm Bill of 1996 (104th Congress – P.L.27, 104th Congress - H.R.2854), also known as the Federal Agricultural Improvement Act and Reform (FAIR) Act of 1996: they were asked to consent to a decrease in farm subsidies and, as a response, the government pledged to endorse distribution in new trade deals with Latin America and in the World Trade Organization (WTO), and remove limitations on planting choices (Scott 1999: 1).

This proposal appeared positive to many farmers, particularly because exports and prices had been increasing for quite a few years. A good amount of farmers and agribusiness interests backed the bill. Further, the proposed bill was in agreement with the standing of many farm representatives as well as a majority of members of Congress from farm states, who had previously favored and continued to favor the WTO, the North American Free Trade Agreement (NAFTA), and the expansion of expedited trade negotiating authority, typically with specific promotion of family farmers. However, in the subsequent years in the wake of the FAIR Act, farm prices experienced a dramatic drop as the elimination of inventory constraints caused an accumulation in domestic crop stores and exports were received at unexceptional levels. The U.S. farm trade balance deteriorated beyond \$13 billion between 1996 and 1998, and value plunged. August U.S. corn prices dropped from \$4.30 per bushel in 1996 to \$1.89 in 1998, or 56 percent. Wheat prices sank from \$4.57 per bushel in 1996 to \$2.46 in 1998, a drop of 46 percent (Scott 1999: 1).

However, unlike previously, farmers did not have the price reinforcements that past farm bills had delivered. The re-merging problem of the farm economy, of course, was also not absent in Congress. Numerous state authorities and congressmen, especially from the Corn Belt States, made the following clear:

Farmers continue to suffer huge losses through absolutely no fault of their own. No other business has less control of the price they can receive for what they produce, the cost of the inputs. Farmers cannot control the weather. They cannot control the world economy. They cannot control what is happening in Asia. But those factors do determine the price of corn, soybeans, wheat, and other commodities. The Freedom to Farm bill passed in 1996 sharply reduced the farmer's safety net to take care of those contingencies over which the farmer has no control. Now farm prices are crashing to levels not seen in decades. Many farmers are going to have a difficult time acquiring funds needed to pay their bills this year and to get the necessary money to get the fields prepared and to get the seed and the fertilizer to get the crops in the ground for next year (Harkin, U.S 105th Congress 1998: 9959).

Further, the following was stated:

Agricultural income is down 98 percent in North Dakota, 98 percent from 1996 to 1997. In Missouri it is down 72 percent. In Minnesota it is down 38 percent. These are dramatic figures. It is leading to hundreds, if not thousands, of bankruptcies and farm closures and foreclosures. We must act in this body to recognize that unless Congress and the Federal Government helps farmers by creating tools that they can use to manage risk, we are going to continue to lose hundreds of thousands of farmers over the next few years in the United States, a loss we cannot afford (Minge, U.S 105th Congress 1998: 4949).

This resulted in the earlier ideas of autonomy from federal farm programs to be forsaken by Congress; a stance evident in the retracting of its resolves placed in the 2002 Farm Bill.

Yet, despite the fact that reintegration of a farm subsidy into the bill occurred along with the addition of counter-cyclical payments and a subsidy program grounded on the season-typical prices obtained by producers, confidence in the capability of the agricultural region to mend itself and improve seemed to have stayed unoptimistic:

American agriculture is beginning its fifth straight year of rock bottom prices. For those farmers lucky enough to raise a decent crop, the only thing that's been keeping them in business is the supplemental relief that Congress has provided in each of the past four years. Last month, the Department of Agriculture confirmed that net farm income will fall by 20 percent this year, to \$40.6 billion, unless Congress responds with improved farm policy (Conrad, U.S 107th Congress 2002: 535)

Given the conditions of declining farm income and rising federal expenditure to the agricultural sector, ethanol proponents again had the chance to play fully to their strength. Presented as a win-win situation, ethanol was highlighted as a suitable partial solution for the growing cost of federal farm-subsidy programs and the increasing federal deficit. Senator

Tom Daschle (D-SD), who played a key role in the implementation of the RFS, for example, highlighted the following several times during the debates:

Virtually all ethanol consumed in the U.S. is produced domestically. Last year, the U.S. ethanol industry processed approximately 560 million bushels of grain into 1.4 billion gallons of fuel ethanol at 53 plants located in 20 states. A report completed for the Midwestern Governors' Conference, *The Economic Impact of the Demand for Ethanol*, concludes that the ethanol industry: increases net farm income more than \$4.5 billion; boosts total employment by 195,000 jobs; improves the balance of trade over \$2 billion; adds over \$450 million to state tax receipts; and results in a net savings to the Federal budget of more than \$3.5 billion (Daschle, U.S 106th Congress 1999: 4105)

Leon Corzine, President of the National Corn Growers Association, Keith Collins, Chief Economist of the U.S Department of Agriculture, and several other Pro-Ethanol Congressmen generally shared a very similar position. They were very specific on the positive impacts the mandated ethanol blended with a RFS would have on federal budget and farm income:

Farm income would also rise as ethanol production rapidly expands. According to the USDA, ethanol adds 20 to 40 cents of additional value to every bushel of corn, ownership and increased value, boosts the ag economy leading to reduce net farm program costs and taxpayer outlays. In fact, with the enactment of an 8 billion gallon RFS, the Congressional Budget Office estimates that spending for farm programs would decline by approximately \$4.8 billion between 2007 and 2015 (Corzine, U.S 109th Congress 2005: 43).

5.2.3 Energy Security Conditions & Problems Identified: EAct of 2005

a) Increasing Fuel Demand, Energy Insecurity and the Volatility of the Oil Market

In addition to rock bottom prices of agricultural products, the period in which the RFS within the EAct of 2005 was discussed was also facing skyrocketing oil prices. Throughout a majority of the 1990s, crude oil prices maintained proximity to about \$20 per barrel, before dropping to almost \$10 per barrel towards the end 1998 as an effect of the Asian financial crisis decelerating demand growth while increased supply from Iraq was arriving in the market for the first time since the Gulf War. Consequently, as producers from the Organization of Petroleum Exporting Countries (OPEC) more exactly observed an organized production quota and diminished yield, crude oil prices improved as well as strengthened and in September 2000 attained \$35 per barrel as Asian economies improved, resulting in increased demand. Prices then increased swiftly in 2004, climbing from about \$30 per barrel

at the end of 2003 to a pinnacle of \$56.37 on October 26th 2004 (EIA 2006: 1). Driving factors were identified as the (1) demand growth in non-OPEC countries (particularly in China, the other emerging economies in Asia, and the United States), who had outstripped their supply growth, (2) failed oil supply expectations of the non-OPEC countries, 3) geopolitical issues in major OPEC producing countries, and (4) seasonal storm-related disruptions in the Gulf of Mexico, which is an important source for U.S. production of crude oil (EIA 2006: 1-7). Coupled with an increasing amount of imported oil from 11.5 Mb/d (million barrels per day) in 2000 to 13.7 Mb/d in 2005 (CRS 2012), the United States trade deficit in crude oil rose from \$89.77 billion (DOC 2000: 52) in 2000, to \$175.76 billion (DOC 2005: 52) in 2005. Against this background, together with focusing events, such as the 2001 and 2003 wars in both Afghanistan and Iraq, respectively, the 2002 Venezuelan strike, and of crucial significance, the 2001 September 11 attacks on the United States, it is hardly surprising that the period of 2000 through 2005, in which most of the ethanol related legislative action of the EPAct of 2005 took place, was also characterized by increasing concerns of energy security and the volatility of the oil market. Evident in the intensity of congressional consideration, policymakers with solemnity and determination painstakingly deliberated on the issue of energy from 2000 to 2005. During the course of the 106th and 109th Congresses, Congress convened many hearings to deliberate on a diverse scope of energy topics. A majority of these hearings underscored the seriousness of the unavailability of fuels, the instability of the oil markets, the influence on the economy and the necessary requirement to acquire and realize answers. The described circumstances are also reflected in the following statements of Representative, Lynn Woolsey (D-CA):

Earlier this year, when the Committee—this Committee debated National Energy Policy, the issue of energy independence was brought up over and over again and it was referred to frequently by members on both sides of the aisle. But now, as we contemplate the world of post-September the 11th, the topic takes on a more urgent tone as it is mostly spoken about in relation to our national security. In this sense, I don't think there is any dispute, particularly in this room, that we must decrease our dependence on foreign oil. With the transportation sector being the biggest user of petroleum, it has become—actually it has become a no brainer that it is a smart place to start in cutting petroleum usage (Woolsey, U.S 107th Congress 2001: 14)

Additionally, Robert Ebel, the Director of Energy and National Security at the Center for Strategic and International Studies (CSIS), highlighted the following in his statement before the Subcommittee on Energy and Resources of the House Committee on Government

Reform:

We need to remind ourselves from time to time that the United States does not stand in isolation from the oil market. We are vulnerable, as are all exporting and importing countries, to any event, anywhere, any time that impacts on supply and demand. [...] Well, we all know that last year was a year of surprises for the world oil sector, surprises that came because we sharply underestimated the growth in demand for oil in China, unexpected robust demand here at home. At the same time there are another group of other events, real or anticipated, that played out in a way that equally pressured oil supply. We had political uncertainties in Venezuela. We had civil war and strikes in Nigeria. We had the unfulfilled promise of Iraq. We had problems in Russia and possibility of terrorist acts in Saudi Arabia. Then along came a hurricane in the gulf coast, which took as much oil off the market as all these other supply factors combined. [...] The question then arises what could we do, what should we do so as to be able to place our oil and our natural gas future back into our own hands? [...]

Encourage alternative and nonconventional energy forms and their integration into a comprehensive energy delivery system. Reassess the management and use of inventories, and employ international diplomacy as the tool supporting the preceding options (Ebel, U.S 109th Congress 2005: 72-73)

Similar statements that emphasized the danger of continued U.S reliance on oil imports due to the geopolitical ramifications of such a dependency and the need to step towards greater energy independence were made by many other congressmen during this period (Akaka 2000: 6244; Lincoln 2000: 1944-1945; Murkowski 2001: 11886; Rodriguez 2002: 1669; Udall 2003: 2342; Reid 2004: 5738).

However, these discussions about the nation's energy situation in combination with the focusing events described above once again gave opportunity to ethanol proponents to push a Renewable Fuel Standard. In being that the majority of congressmen agreed on the need to enhance National Energy Security, ethanol proponents, once more, had the chance to present ethanol as a friend to those in need:

Ethanol also can provide significant benefits in the area of energy security. Over the past several years, we have become increasingly dependent on imported petroleum to meet our energy needs. The U.S. imports about two-thirds of its oil, and some experts predict our dependence upon foreign crude oil could climb to 70 percent in the years to come. Much of this oil will come from the Middle East. Fears of additional terrorist attacks have added a risk premium to world oil prices. At the same time, developing nations such as China and India have increased their demand for oil. As a result, world oil prices are on the rise. [...] As a domestic renewable source of energy , ethanol can reduce our dependence on foreign oil and increase the United States' ability to control its own security and economic future by increasing

the availability of domestic fuel supplies (Herseth, U.S 109th Congress 2005a: 1765).

In conclusion, the period in which the EAct of 2005 and the Renewable Fuel Standard was discussed in the legislative body faced several problems that were highlighted in Congress and which significantly contributed to enactment of the RFS within the EAct of 2005. Not at least because of the circumstances, also shown in chapter 5.5, these problems were mostly discussed and interconnected during debates due to a large extent to the achievement of policy entrepreneurs and ethanol proponents. As demonstrated in the further sections of this work, they skillfully combined these problems and presented ethanol as a suitable “one-shot” solution for such a series of problems. Nevertheless, as postulated by Kingdon, simply because a dilemma is prominent amongst actors and in a position to garner attention, does not automatically create sufficient conditions to further a specific topic on to the agenda. Additional factors that require added contemplation are the methods by which ideas are created and the occurrence of advantageous political circumstances. Therefore, the subsequent chapter deliberates on the expansion of the ethanol solution within the group of individuals responsible for the policy stream.

5.3 Policy Stream

As stated above, Kingdon’s (1995) model brings focus not only to issues, which are contending for attention, but also to answers that are capable of accompanying prominent issues. He compares this mechanism, in which actors progress their own propositions and anticipate openings to further them, to a “primeval soup”. As postulated by Kingdon (1995), if these propositions were to persist, they are required to be theoretically achievable, monetarily appropriate, and all in all meet the standards and expectations of those involved (Kingdon 1995).

Therefore, based on a literature analysis and an examination of congressional hearing documents, this section aims to identify the most important actors involved in taking the Renewable Fuel Standard of the EAct of 2005 as a legislative agenda item as well as what these actors did to prompt the suggestion of a formulation procedure.

5.3.1 Governmental Actors

It is evident that from the 106th to the 109th Congress, specific federal agencies had a more prominent function in endorsing ethanol as a component of the energy answer. This becomes even clearer upon evaluation of the literature and consideration of the congressional hearing texts. The most evident contributors in the policy stream were the U.S. Department of Agriculture (USDA), the Department of Energy (DoE), and the Environmental Protection Agency (EPA), which the following section will discuss.

a) The Role of the U.S. Department of Agriculture (USDA)

The USDA has an extensive background of participation in the U.S. ethanol debate and is a perfect example of what happens when a federal agency is subject to high political pressure from corn-state politicians. Whereas the first comprehensive scientific study on ethanol, issued by the USDA in 1986, was “clearly a blow to ethanol supporter[s] and their congressional backers” (Johnson and Libecap 2000: 41), as it concluded “that it would be more economical to burn straight gasoline in our automobiles and pay corn growers a direct subsidy equal to the amount they would receive as a result of ethanol production” (Libecap 2003: 94), the résumé of the subsequent studies related to ethanol and conducted by the USDA, took a different turn. With the multitude of criticism and rising pressure from many influential corn-state politicians - in that they were about to lose or see a deterioration of their ethanol subsidy justification for helping to solve rising corn deficiency payments in the late 1980s - the emphasis of further USDA studies was more on the focus of how ethanol reduces deficiency payments and increases farm incomes - fields where ethanol could score - rather than on weak points, such as those made clear by a costs-benefits ratio analysis of a government ethanol program, which did not speak positively of ethanol production (Johnson and Libecap 2000: 41-42). With the USDA beginning to consider ethanol as a way of concealing farm program costs and enabling the directing of funds to corn producers as well as the subsequent issued USDA report on ethanol (1988) highlighting the environmental, rural development and energy security benefits, which also concluded and highlighted the feasibility of government subsidies for ethanol due to net savings for the government (Libecap 2003: 94), the USDA changed their position from taking a rather critical view on ethanol throughout the 1980s, to being a highly visible supporter of ethanol throughout the 1990s and 2000s. Being that the period in which the EPA Act of 2005 and the Renewable Fuel Standard was discussed was significantly characterized by environmental problems (see

chapter 5.2) - and therefore the topic of the potential of ethanol to reduce carbon monoxide was highly relevant - its environmental costs of production and transportation to outside corn-belt states and its net energy balance was seriously questioned during hearings between the 106th through 109th Congress. As a result, beginning in 2000, the USDA initiated efforts to associate the suitability of ethanol to environmental issues. However, given the fact that there was some ambiguity surrounding how high exactly the environmental benefits, such as the carbon monoxide reduction, of ethanol could be, the USDA concentrated its scientific studies more on energy security and the rural development benefits of ethanol. One of these studies included *The Energy Balance of Corn Ethanol: An Update* (Shapouri et al. 2002), which concentrated on the overall energy balance of ethanol. The recommendation for ethanol from this report was clearly positive:

That the NEV of corn ethanol has been rising over time due to technological advances in ethanol conversion and increased efficiency in farm production. We show that corn ethanol is energy efficient as indicated by an energy output:input ratio of 1.34. [...]We conclude that the NEV of corn-ethanol is positive when fertilizers are produced by modern processing plants, corn is converted in modern ethanol facilities, and farmers achieve average corn yields (Shapouri et al. 2002: i-12).

With also presenting these results in Congress, the USDA played an active part in promoting ethanol during 2000 through 2005. These efforts are also shown by the following statement of James Moseley, Deputy Secretary of the USDA:

I am pleased to appear before you today to discuss the Department of Agriculture's efforts to advance renewable energy and thereby contribute to the energy security of our Nation. [...]Although it takes energy to produce ethanol, we emphasize that repeated USDA studies, using robust corn yields and increasingly efficient fertilizer and alcohol conversion processes, show a positive net-energy balance of corn ethanol: we believe that the energy in ethanol exceeds the amount of energy used to produce it, and that this energy balance has improved over time (Moseley, U.S 108th Congress 2004: 53).

But, perhaps more importantly, these results were easy bait for ethanol proponents to argue for a comprehensive ethanol policy between the 106th and 109th Congress. Along with many others (Collins 2005: 63; Herseth 2005b: 33), Leon Corzine, President of the NCGA highlighted several times in numerous speeches the benefits of ethanol:

Ethanol facilities are extremely energy efficient and actually yield more energy than refining gasoline and the gasoline additive MTBE. According to the USDA, the net energy balance of ethanol indicates that ethanol products 67 percent more energy than it takes to generate.

Ethanol's energy efficiency comes from the fact that corn plants are very efficient solar panels that take energy from the sun and collect them and store them and we turn them into fuel (Corzine, U.S 109th Congress 2005: 42).

In addition to the often highlighted positive net energy value (NEV) results of ethanol, a further study released by the USDA in August 2002, at the request of Senate Agriculture Committee Chairman, Tom Harkin (D-IA), specifically highlighted the effect the RFS as part of the EAct of 2002 would have on commodity markets, farm income and employment. The report concluded that by 2011, under a RFS provision that would have guaranteed the conception of a five billion gallon per year market for renewable fuels over the following ten-year period, net farm income would have been increased by \$700 million, trade deficit would have been decreased by \$4.45 billion and 13,500 new jobs would have been created (Harkin 2002). Simultaneously, Stephen Vogel, Michael Price and Gerald Schuster from the USDA Economic Research Service, published a paper titled *Putting Bounds on Estimating Economy wide Impacts from Adopting the Renewable Fuels Standard*, which concluded similar results, namely that "adopting the RFS would stimulate between \$3.4 billion and \$6.9 billion in new output and generate 12,600 to 31,400 jobs" (Vogel et al. 2002: 103). Ethanol proponents during the RFS relevant hearings between 2001 to 2004 mainly highlighted (Nelson 2002: 2908; Talent 2003: 5891; Daschle 2003: 5985) the results of a study conducted by AUS Consultants, which was titled *An Economic Analysis of Legislation for a Renewable Fuels Requirement for Highway Motor Fuels (2001a)* because it concluded the highest favorable impacts of 5 billion gallons of ethanol mandated under a RFS:

[This] would create as many as 300,000 American jobs , increase net farm income by \$6.6 billion a year, and reduce farm program payments by \$7.8 billion . In other words, we can reduce farm program payments and increase net farm income by a combined total of \$14.4 billion. Not many programs give you that much bang for the buck (Bond, U.S 108th Congress 2003: 5891).

However, the results of the USDA conducted studies regarding the economic impact of ethanol production played an important role in the final discussions of the expanded 8 billion RFS within the EAct of 2005. Its influential position in the advancement and distribution of approving and complimenting information regarding a 8 billion RFS is also clear in the following testimonial of Keith Collins, Chief Economist of the USDA, in which he stated in a hearing titled "Agriculture's Role in a Renewable Fuels Standard", before the Committee on Agriculture, the following:

We examined a RFS that requires 8 billion gallons in 2012.[...] Over the period of 2006–12, farm cash receipts increase, on average, by \$2.2 billion. Net farm income increases, on average, by \$1.4 billion, or 2.3 percent, over the period. Higher corn prices for the 2006–07–2007–08 crops would reduce government payments by nearly \$1 billion over those 2 years. The increase in ethanol production generates an additional 23,500 jobs in ethanol production, feed grain production, service and manufacturing sectors. However, higher corn prices and increased use of coproducts from the conversion of corn into ethanol reduces employment in other sectors, so the net new jobs created is placed at 8,900. In conclusion, according to our analysis, a RFS of 8 billion gallons could have a positive effect on the farm economy. While impacts vary by commodity, net farm income would increase. The construction boom in ethanol plants experienced over the past 5 years would continue, generating rural jobs (Collins, U.S 109th Congress 2005: 64-65).

Such findings, of course, did not have to wait long to be incorporated into pro ethanol argumentation and were repeatedly highlighted by ethanol supporting congressman and interest groups (Corzine 2005: 69; Nelson 2005: 9822; Osborne 2005: 1767; Harkin 2005: 6591) during subsequent debates on a RFS within the EAct of 2005.

In closing, it can be summarized that, in forwarding the progression and distribution of industry knowledge, and delivering opinions and comments to policymakers on the situation in which the industry was dealing with, the USDA significantly influenced debates and decision-making on a RFS within the EAct of 2005. This was especially true in reference to technical advances and common practices in agriculture and ethanol production, which the Agency maintained would boost the achievability of ethanol in the U.S. In reference to studies, which called into the question the feasibility of ethanol, the USDA questioned such results and provided data supporting the use of ethanol as well as highlighted the positive ramification that ethanol production delivers to farmers. However, since the initial push for ethanol use, in an attempt to attract a larger audience outside the agricultural world, the USDA has furthered these arguments to highlight the greater positive attributes of ethanol for society.

b) The Role of the U.S. Environmental Protection Agency (EPA)

Similar to the USDA, the Environmental Protection Agency (EPA) has an extensive past of association with ethanol mostly due to the fact that from the late 1980s to 2000, the topic of deteriorating air quality and MTBE led conversation and debate, which was specifically clarified in the Problem Stream of this thesis (chapter 5.2.1) and will thus not be discussed in

detail here. Instead of highlighting facts regarding environmental problems the EPA dealt with (as already discussed in chapter 5.2.1), the current chapter will focus on the presence and influence of the EPA in Congress regarding ethanol. As shown in the Problem Stream, the EPA, in relation to ethanol, already played an important part in designing, monitoring and implementing the Clean Air Act of 1990. It progressed in reaction to constant environmental fears concerning air quality and launched the Reformulated Gasoline Program and the Oxygenate Fuels Program in an effort to influence and exert control over carbon monoxide and ozone issues (EIA 2000). While during the Reagan Era, the role of the EPA was reduced to a minimum and had barely any involvement with ethanol, with the EPA initiated provision that mandated the use of gasoline containing at least two per cent oxygen by weight under the Reformulated Gasoline, the EPA began to play a larger role in the development of ethanol. This was especially true when an increasing amount of research results branded MTBE as the cause of ground water contamination nationwide. Subsequently, with MTBE being a solution provided by the EPA to combat the deterioration of air quality standards, the EPA immediately became involved in numerous studies, which sought a replacement for MTBE. As shown in the Problem Stream, one significant study of the rich corpus on MTBE provided by the EPA was the *Achieving Clean Air and Clean Water* (BRP 1999) report, which was conducted by the Blue Ribbon Panel on Oxygenates in Gasoline and which in turn was appointed by EPA Administrator, Carol M. Browner, to deliver objective guidance and proposals on ways to preserve air quality while guarding water quality. But even though this report recommended that Congress should eliminate the two percent oxygen prerequisite for RFG and develop other cost-effective gasoline blends, based on the fact that there was no definite conclusion on the benefits of ethanol as an oxygenate additive, the EPA continued to be a fervent backer of substituting MTBE with ethanol in RFG (WRRRI 2000: 4). As an alternative, the EPA proposed that MTBE be incrementally no longer used over an interval of several years, while preserving the two percent oxygenate prerequisite, as the EPA's Blue Ribbon Panel had also found that RFG had had substantial positive ramification on air quality that could not be rapidly and inexpensively substituted by other gasoline blends. Therefore, the EPA did not endorse the abrupt stoppage of MTBE use (WRRRI 2000: 4). With the EPA being a highly visible participant in the policy community - in that they were cited and mentioned in the hearings throughout the 106th to the 108th Congress that discussed the issues of the CAA and its two percent oxygen prerequisite for RFG, the MTBE groundwater contamination and the formation of a RFS that would revoke the CAAs oxygenate condition – it played three crucial roles: First, in relation to MTBE water contamination, the EPA provided

feedback on this topic to policymakers and because of this feedback, which was used by pro-ethanol congressman, ethanol and the RFS gained a favorable position, causing the implementation of section 1501 to be more likely. For example, Senator Hagel (R-NE) from Nebraska, a strong supporter of Senator Domenici's (R-NM) EPA Act of 2003 (108th Congress – H.R.6) and one of the early proponents of ethanol, stated the following in a hearing held on the EPA Act of 2003:

This amendment follows the advice of the EPA's Blue Ribbon Panel on Oxygenates by repealing the Federal oxygenate mandate and phasing out the use of MTBE nationwide. It also contains a reasonable renewable fuels standard, which would gradually increase the Nation's use of renewable fuel to 5 billion gallons a year by 2012—all of this while protecting the environmental gains already made by the reformulated gasoline program (Hagel, U.S 108th Congress 2003: 5892).

Second, during these hearings, despite the recommendations of the Blue Ribbon Panel on Oxygenates, the EPA was able to effectively reason for the denying of several states' requests for exception from the RFGs oxygen requirement. This was done so that a nationwide solution could be found, as opposed to individual states mandating their own rules, because as the EPA explained, this would create "an inefficient patchwork of potentially conflicting regulations" (quoted in NPRA 2004: 3). In doing so, the EPA pointed in the direction of a national solution for the environmental problems of declining air quality, MTBE contamination and global warming and, as it came to pass, the RFS was presented as a suitable national answer to these problems.

Third, various states were increasingly and clearly not happy with being told how to achieve the prescribed environmental standards, which is also shown in the following statement by Californian Representative Henry Waxman (D-CA):

What we would like to have done is just wipe out the oxygenate requirement and let the States decide the matter for themselves. Who needs Washington to decide these issues for us? If we are going to achieve the environmental standards, let the States make their own decision how they want their gasoline to be reformulated.[...] Do not tell California how to handle our own gasoline, to have balkanized fuels. We want one fuel in California that will clean up the air in the State, and not have to use ethanol to benefit Archer Daniels Midland in the Midwest, or MTBE to benefit some of the manufacturers in Texas. We want to handle our own affairs for ourselves (Waxman, U.S 107th Congress 2001: 5135-5137).

Thus, the EPA distanced itself more and more from the need to maintain the oxygen requirement and increasingly became an ardent enthusiast of a Renewable Fuels Standard (RFS) instead of an oxygenate stipulation under the RFG provision of the Clean Air Act of 1990. This is also evident in the statement of Jeffrey Holmstead, Assistant Administrator for Air and Radiation of the U.S. Environmental Protection Agency, which he gave during a hearing, titled “Clean Air Act: Alternative Fuels and Fuel Additives”:

Specifically, I would like to comment this morning on the gasoline provisions in the legislation introduced by Senator Daschle and cosponsored by the distinguished Chairman of this subcommittee. The Bush Administration supported and continues to support the fuel provisions of the energy legislation that passed the Senate last year. That legislation would have maintained the environmental benefits of the reformulated gasoline program, known as the RFG program, prevented backsliding in air toxics, removed the RFG oxygenate mandate, imposed a Federal phase-out of MTBE, and created a national renewable fuels standard. The Administration wants to reaffirm its support of legislation such as S. 385 that is consistent with this approach. [...] The bill would, one, maintain the air quality benefits of the Clean Fuels Program, such as RFG; two, remove the 2 percent oxygenate requirement under the RFG program; three, phase out the future use of MTBE across the Nation, while allowing sufficient lead time for refiners and MTBE producers to switch production to other gasoline blend stocks; and four, implement a renewable fuel standard that encourages positive life cycle renewability through the use of domestically produced renewable fuels, through a national credit averaging and trading program (Holmstead, U.S 108th Congress 2003: 6-8).

The changed position on elimination of the oxygen requirement of the CAA and the EPA taking a favorable position towards the RFS may perhaps also be explained by the fact that the EPA would have been in charge of founding and applying guidelines to safeguard that the nation's transportation fuel source is comprised of the biofuel volumes required by the RFS.

In synopsis, the steps taken by the EPA also had a strong influence on ethanol's rise to agenda status and on the decision to assure the continued growth of ethanol usage with the Renewable Fuel Standard. While these proceedings did not always seem to be conducted in an obvious effort to endorse ethanol, as demonstrated in the problem and policy stream, numerous did have this effect.

c) The Role of the U.S. Department of Energy (DoE)

Another player appearing in the ethanol debate regarding the EPAct of 2005 was the U.S. Department of Energy (DoE). Even though the appearance of this department was perhaps not as influencing as the occurrence of the USDA and EPA, their methodical and organized investigation and reports on energy issues, and their tendency to function as a central feedback instrument to policymakers in the U.S. Congress, played an important role. However, in this context, the DoE, compared to the USDA and EPA, represented a bit of a divergent position regarding the biomass resource category of ethanol. Admittedly, the DoE was not against the continuation of corn ethanol production, but their support for ethanol concentrated more on the expanding research and use of the second generation of ethanol, which probably primarily can be traced back to the results of the DoE conducted study, *Effects of Fuel Ethanol Use on Fuel-Cycle Energy and Greenhouse Gas Emissions* (1999). In a few words, in this account, the DoE identified only minimal net positive energy in corn-based ethanol and only a modest enhancement in the lessening of carbon monoxide as an outcome of utilizing corn ethanol. The favorable position of renewables and, specifically, ethanol from cellulosic material is also shown by the statement of David Garman and other testimonials asserted by DoE representatives between the 106th and 109th Congress:

We want renewables to play an even greater role in displacing some of the roughly 136 billion gallons of gasoline and 33 billion gallons of highway diesel we use each year, so we have to look beyond grain-based alcohol. [...] We must look beyond starch-based ethanol if we wish to have the impact we desire. S. 385 explicitly recognizes the need for new technologies through provisions that provide extra RFS credits for ethanol produced from cellulosic materials. The Department of Energy (DoE) has been focusing on a research and development (R&D) program to develop cellulosic-based ethanol that could be produced from many types of agricultural resources, residues, and energy crops (Garman, U.S 108th Congress 2003a: 9).

However, even though the DoE favored and highlighted the production of ethanol from cellulosic material, most importantly, they took similar action as the USDA and EPA and supported the replacement of traditional fossil fuels with renewable energy sources, especially with ethanol and hydrogen fuel in the transportation sector. The favorable position that ethanol had within the DoE is made clear by the various statements that representatives of the DoE asserted within hearings that were held on the broad topic of ethanol in the context of an energy bill. For example, David Garman stated the following in a hearing titled “U.S. Energy Security – Options to Decrease Petroleum Use in the Transportation Sector”:

We will also continue development of domestic biofuels as an alternative to imported

petroleum. Biofuels, including ethanol and biodiesel, have been part of DoEs portfolio since the origin of the Department (Garman, U.S 107th Congress 2001: 47).

Further, specifically in relation to the RFS, he announced the ensuing statement in a hearing discussing “Energy Use in the Transportation Sector”:

The Administration strongly supports a renewable fuels standard (RFS) that will increase the use of clean, domestically produced renewable fuels, especially ethanol, which will improve the Nation’s energy security, farm economy, and environment (Garman, U.S 108th Congress 2003b: 10).

It is therefore clear from the statements and descriptions above that the DoE also performed a critical function in furthering the proposal of ethanol. This is because, on the one hand, they supported and emphasized corn-based ethanol as a long-term answer to energy insecurity, and, on the other hand, the DoE concentrated efforts on progressing ethanol derived from cellulosic biomass.

5.3.2 Interest and Lobbyist Groups

As described in chapter 2.2.1.4, for Kingdon, interest groups have an important role in policymaking. They are kind of ubiquitous in the political marketplace and there is “little doubt that interest groups loom large indeed” (Kingdon 1984: 46). Therefore, the first part of this chapter recognizes multiple interest groups, who had a significant part in promoting the idea of ethanol as favorable and in translating the solution of ethanol into the RFS within the EPAct of 2005. However, the second part of this chapter attempts to recognize the most pronounced of those groups who contested this development. It is also important to mention that the appraisal of literature and congressional hearing reveals that, in the case of ethanol between the 106th and 109th Congress, there was quite an overwhelming pool of interest groups. Therefore, this section will not elaborate on all actors involved; instead it will identify the most visible ones, as it seems that some interest groups were more significantly involved than others.

a) The Role of the Renewable Fuels Association (RFA)

The Renewable Fuels Association, which was founded in 1981, has without doubt been the most important interest group lobbying for increased ethanol production under a RFS within

the EPAct of 2005. The RFA, as indicated by its name, is comprised of a range of “ethanol producers and suppliers, gasoline marketers, agricultural organizations and state agencies dedicated to the continued expansion and promotion of fuel ethanol” (RFA 2013: 2). It is worth adding that this also includes agri-business titan, Archer-Daniels Midland (ADM), the largest producer of ethanol in the U.S. With such support behind them, it is hardly surprising that the RFA was highly public in pushing for the increased use of ethanol and, further, that this interest group makes the self-promoting claim on its main website that it “has been the industry's most forceful advocate for expanding the market for ethanol. Just as important, we've worked to beat back aggressive challenges to ethanol's progress from special interests seeking to maintain fossil fuel status quo” (RFA 2013b). In seeing their objectives in “promot[ing] federal, state and local government policies, programs and initiatives that encourage expanded ethanol use” (RFA 2013b), it was also not unexpected that the examination of congressional hearings between the 106th and 109th Congress included outspoken RFA participation. Especially Bob Dinneen, who in 2001 became President and CEO of the RFA, an interest group which self presents “as the ethanol industry’s lead lobbyist before the Congress and Administration” (RFA 2013c), was well presented with numerous statements that linked the RFS under the Policy Act of 2005 as a answer to the issues that came about in the course of debating the expansion of ethanol. For example, in his many statements presented to Congress, he underlined the following:

The RFA commends the leadership of the Chairman and this Committee for including a renewable fuels standard in the draft Energy Policy Act of 2005. The Energy Policy Act of 2005 provides a federal resolution to persistent concerns related to MTBE, avoiding a patchwork of state actions. It maintains the existing clean air benefits of federal RFG with strong anti-backsliding provisions. It provides refiners with the flexibility they have sought in meeting Clean Air Act requirements by eliminating the federal RFG oxygen standard. And it provides some marketplace certainty to farmers and ethanol producers that have acted responsibly to meet the demand created by current law (Dinneen, U.S 109th Congress 2005: 317)

Additionally, he stated the positives of ethanol use:

Ethanol is a clean, energy efficient, environmentally friendly fuel produced at production facilities that create jobs and economic opportunity in the rural communities in which they are located (Dinneen, U.S 108th Congress 2003a: 34).

As is apparent from these statements, the RFA on the front line with “top lobbyist” (RFA 2013c; The Hill 2012;), Bob Dinneen, followed a strategy of depicting numerous explanations

for the increased utilization and manufacturing of ethanol under a RFS within the EPAct of 2005. Thus, by successfully linking ethanol with lowering the demand for oil imports, improving energy security, facilitating the creation of a resilient national energy supply, decreasing air pollution, increasing farm income and reducing the costs of farm programs, the RFA, together with the NCGA, was a highly influential and assertive actor in promoting and further advancing the ethanol idea. This was also possible because they were not only skillfully linking ethanol as a solution to the emerging problems of the time, but also supporting administrative decisions instead of the more open legislative procedure. In this connection, particular mention should be made that by aiming to expand the ethanol market, the RFA was also a strong supporter of the EPA's two percent oxygen content requirement for reformulated gasoline, which implementation of, together with the detection of MTBE in groundwater and other factors (see chapter 5.2), paved the way for successfully arguing for a RFS. Further, the EPA was very active in Congress providing statistical information on the economic impacts of ethanol and their industry's competence in being able to deal with any escalating need produced by the enactment of policy intended to increase the use of ethanol. Focus when the RFA was present at congressional hearings was on two things, one of which was convincingly refuting the economic impact of ethanol in figures:

The Renewable Fuels Association recently completed a study on the economic impacts of a 40 million gallon ethanol facility on local communities. The results are extraordinary. The study concluded:

- During construction, capital spending generates \$142.2 million in gross output to a local economy and \$46 million in new household income (one-time impact);
- More than \$56 million is spent locally on its daily operations each year;
- The local economy is expanded by \$110.2 million each year;
- Local farmers receive an additional 5–10 cents per bushel in increased revenue at the farm gate (whether delivered to the ethanol facility or not);
- The plant creates 41 permanent direct jobs and 694 permanent jobs throughout the entire economy; and,
- The ethanol plant will generate \$19.6 million in annual household income for the community (Dinneen, U.S 108th Congress 2003a: 34).

The second focus of the RFA in Congress was to be convincing of the industry's adeptness in alleviating possible prospective limits related to the supply of ethanol, a point of condemnation frequently draw on by opponents of ethanol:

The U.S. ethanol industry has clearly demonstrated it can continue to provide refiners with adequate supplies to meet current Clean Air Act requirements, even as states take action

limiting the use of MTBE (Dinneen, U.S 108th Congress 2003b: 489).

In conclusion, RFA and specifically Bob Dinneen played a major part in pushing through the idea of ethanol in state policy by connecting the problems of the time and dexterously packing ethanol as a suitable “one-shot” solution for these series of problems.

b) The Role of the National Corn Growers Association (NCGA)

Another group with a similar stance and which was equally as involved was the NCGA. The NCGA has a long history (founded in 1957) of supporting governmental policies that favor national corn growers because as NCGA’s Communication Director, Ken Colombini, puts it, they are representing “35,000 dues-paying corn farmers nationwide and the interests of more than 300,000 growers [that have] long recognized the potential of ethanol as an expanding market for its members, and many of them not only be[ing] suppliers, but investors in the industry and vocal advocates for its expansion” (Colombini n.d.). Therefore, it is not surprising that the appraisal of the congressional hearings between the 106th and 109th congress shows that in addition to the RFA, the NCGA has been a comparable highly visible actor in congressional hearings that discussed the idea of ethanol and its secured expansion under an RFS. By seeing themselves as “strong supporters of policies to help the ethanol industry grow [and promoting] ethanol as an environmentally friendly, renewable domestic fuel that will help provide energy security and independence and support [of] nation’s economy, especially in Rural America” (Colombini n.d.), they have indeed, as they claim for themselves, “worked tirelessly and aggressively to counter critics who attack corn ethanol on false charges” (Colombini n.d.). As already shown in various statements in the Problem Stream (chapter 5.2), a representative, who “tirelessly” supported the idea of ethanol in Congress, was former NCGA president, Leon Corzine (2004-2005). In various statements asserted in Congress, similar to RFA President Bob Dineen, Leon Corzine presented the idea of mandating ethanol under the RFS as a suitable solution for the problems described in chapter 5.2:

The NCGA urges you to support the Senate position on this RFS. The 8 billion gallon RFS is about reducing America’s dangerous dependence on foreign oil and the economic and military costs that will result from this dependence. It is about our keeping our air and water clean through the use of safe, clean burning fuels. It is about improving our economy by building new domestic industries that can meet the demands of consumers and keep American dollars here at home rather than filling the coffers of foreign unfriendly governments. It is about the future of U.S. agriculture and our Nation as a whole. Congress needs to enact a

comprehensive energy policy now that includes the 8 billion gallon RFS (Corzine, U.S 109th Congress 2005a: 44).

In several other statements asserted in Congress, the NGCA and their front-man, Leon Corzine, similar to the RFA, emphasized the positive net energy balance of ethanol (Corzine 2005: 68) and the positive impact an expansion of ethanol would have on farm income and federal spending on farm programs:

While ethanol production creates greater demand for corn, it is not just corn growers who reap the benefits. Each ethanol plant serves as a rural economic engine for the surrounding areas creating high paying jobs, value added markets for farmers, and increased local tax revenue (Corzine, U.S 109th Congress 2005a: 68).

As well as the RFA, the NCGA also supported the reformulated gasoline oxygenate requirement and vigorously opposed the Cox-Waxman amendment that would have approved California to choose to no longer follow the reformulated gasoline oxygenate requirement because, as NCGA President Lee Klein (2000-2001) stated, "it would only result in degrading air quality and increasing our dependence on foreign sources of energy" (qtd. in Ethanol Wins Big! 2001). Further, the NCGA also devoted itself to promoting legislative actions that called for a phase out of MTBE, such as The Bond-Durbin bill. As it would have further opened the door to increased use of ethanol, NCGA President Lynn Jensen (1999-2000) applauded the backers of the bill - Senator Christopher Bond and Richard Durbin - for focusing on the MTBE issue without weakening the CAA and noted that "the problem is NOT oxygen in gasoline -- it's MTBE in our water supplies. Therefore, eliminating the oxygenate requirement is not the answer. Ethanol is" (qtd. in NCGA Welcomes Introduction of Bond-Durbin Clean Air Bill 2000). This is also shown clearly by the following statement made by Leon Corzine in a hearing on the "MTBE Crisis and the Future of Biofuels":

EPA's plan will phase out MTBE. This is a positive step considering it does contaminate water and damages the environment. But [...] the oxygenate standard must not be compromised in any way. NCGA is asking the Senate and U.S. Congress as a whole to make a real statement about our government's commitment to clean air, fighting high fuel prices and energy self-sufficiency. The administration proposal also encourages establishment of a renewable fuel standard and this proposal sounds good at first (Corzine, U.S 106th Congress 2000: 20-21).

Due to the RFA and NCGA being fanned by quite similar interests, it is therefore not unexpected that a evaluation of the hearings between the 106th and 109th Congress shows

that they were presenting quite the same arguments and consequently following a similar strategy of linking ethanol as the all-in-one solution for problems faced by Congress. Further, it is not a great surprise that the investigation of the congressional debate between 1999 through 2005 also shows that there is indication of a rising amount of collaboration amongst the RFA and the NCGA in realizing their goal of the enactment of policy advantageous for ethanol. For example, in a letter from Leon Corzine to Senator Lugar (R-IN) and Senator Harkin (D-IA) - both representing Corn Belt states and known for devoting themselves to farmer-friendly legislation, the following was stated:

NCGA, ASA and RFA applaud your continued efforts to promote the use of biobased products that will encourage the development of new markets for corn and soybeans and ultimately help to revitalize rural economies and the agriculture industry as a whole (Corzine, U.S 109th 2005b: 6807).

Increasing level of cooperation is also indicated by the subsequent statement by Senator Daschle (D-SD), one of the leading ethanol supporters in Congress and a first introducer of a RFS on the floor of the Senate:

This language establishes a nationwide renewable fuels standard of 5 billion gallons by 2012, repeals the Clean Air Act's oxygenate requirement for reformulated gasoline, and phases down the use of MTBE over a 4-year period. This language has strong, bipartisan support and is the result of long negotiation between the Renewable Fuels Association, the National Corn Growers Association, the Farm Bureau Federation, the American Petroleum Institute, the Northeast States for Coordinated Air Use Management, and the American Lung Association. It is hard to get all those people together on any piece of legislation. I think it is wonderful (Daschle, U.S 108th Congress 2003: 6044).

This statement and a letter that was sent to every representative participating in the U.S. House-Senate energy bill conference committee urged them to make clear that the RFA and NCGA obtained significant backing from a coalition of agriculture, environmental, consumer, automotive and renewable fuels groups as well as to persuade them to approve an 8 billion gallon renewable fuels standard in the final bill (Coalition Urges Adoption of 8 billion gallon RFS 2005).

c) The Role of Additional Interest Groups Supporting RFA and NCGA

In addition to the RFA and NCGA, the letter was specifically signed by 21 groups, which are stated in table 3:

Table 3: Additional Interest Groups

Organization	Abbreviation	Organization	Abbreviation
National Biodiesel Board	NBB	Chicago Board of Trade	CBOT
Environmental and Energy Study Institute	EESI	U.S. Canola Association	USCA
American Farm Bureau Federation	AFBF	National Barley Growers Association	NBGA
American Soybean Association	ASA	National Sunflower Association	NSA
National Farmers Union	NFU	National Association of Wheat Growers	NAWG
National Grain Sorghum Producers	NSP	American Coalition for Ethanol	ACE
Farm Credit Council	FCC	Ethanol Producers and Consumers	EPAC
New Uses Council	NUC	Energy Future Coalition	EFC
CoBank		Alliance of Automobile Manufacturers	AAM
Biomass Coordinating Council	BCC	Consumer Federation of America	CFA
Cenex Harvest States	CHS Inc.		

Source: own illustration, based on "Coalition Urges Adoption of 8 billion gallon" (2005)

The RFA and NCGA, in connection with interest groups, could be clearly identified as the driving force behind the idea of ethanol and a RFS, as is also unmistakably shown in the following statement by Senator Daschle (D-SD):

If you really want to pass renewable fuels legislation, every one of us in this body knows you better have the National Corn Growers and the Renewable Fuels Association ready and able to help you line up the votes (Daschle, U.S 108th Congress 2004: 5943).

Yet, the wide support these two primary interest groups received from the organizations stated in table 3 was certainly also a decisive factor for why the idea of a RFS became favorable, further resulting in placement on the policy agenda and finally reaching agreement. Further, due to the fact that a deepened and detailed discussion of every single interest group stated above would go beyond the scope of this study, this section will instead focus on the collaboration that was established between these groups and their position regarding a RFS. This is important because, as will be shown in the policymaking process of S.872 and S.Amdt.476 – Ethanol Subsidy and Tariff Repeal Act (chapter 6), the stances of various groups towards ethanol altered with time, which we will see in chapter 6. However, two good examples of influential interest groups that initially supported the RFS, but then changed their position after implementation of the EPOA of 2005, include the National Farmers Union (NFU) and the American Farm Bureau Federation (AFBF). The subsequent statement by Bob Stallman, AFBF President, should clearly demonstrate the favorable

position of the AFBF towards a RFS during the time it was being debated and when implementation in the EPAct of 2005 occurred:

America's energy independence and future economic growth depend on a more diversified energy portfolio. [...] Having an 8-billion-gallon (RFS) puts us on a clear path to decrease our dependence on unstable foreign sources of energy and create new markets for America's farmers (quoted in AFBF 2005: 1).

The same applies to the NFU by stating on their official home page that they have "led effort to push for the passage of a Renewable Fuels Standard (RFS)" (NFU n.d.). Also in agreement with the above statements is the article *The New Harvest* issued by the Energy Foundation (EF), which states the following:

The American Farm Bureau Federation and National Farmers Union, along with commodity groups representing corn, soybean, sorghum, sunflower and canola producers rallied behind 2005 Energy Bill passage of a national Renewable Fuels Standard (RFS) (Mazza and Heitz 2005: 8).

A good example of an ethanol favorable environmental group at the time of the RFS being debated was the National Resources Defense Council. A study issued in 2004 with the title of *GROWING ENERGY - How Biofuels Can Help End America's Oil Dependence* (Greene et al. 2004) makes unmistakably clear their position in regards to ethanol.

However, as already mentioned, favorable positions regarding ethanol - as will be shown in further discussion on the Policymaking Process of the Ethanol Subsidy and Tariff Repeal Act (chapter 6) – of such groups, who focused mainly on agricultural and environmental issues, have changed over time due to specific factors.

d) The Role of Oppositional Interest Groups

As is shown by the empirical material and by secondary sources, conflicting interest groups, mostly from the oil industry, started to rally more and more against ethanol when MTBE began to lose ground as an oxygenate. Even though the oil industry's goal was to lessen new Federal guidelines influencing vehicle emissions, the CAA of 1990 was to some degree on an "acceptable level" for the oil industry because, in this context, they could demonstrate that they were capable of making cleaner gasoline and at the same time were making good business with MTBE. What was definitely not acceptable for the oil industry were further mandates replacing MTBE with increasing amounts of renewable energy sources, such as ethanol in reformulated gasoline, because MTBE making room for ethanol was anticipated to

result in a decline of the motor fuel's market share for the oil industry due to an increased use of alternative fuels competing with gasoline as a motor fuel (Mayer et al. 1995). With that said, especially the oil industry clearly had a strong stand against a RFS because it would have even more affected the industry, as the RFG program did under the CAA of 1990. It is therefore also not surprising that the most visible actors that negatively affected the idea of ethanol were two organizations that are primarily comprised of chemical companies, namely the NPRA and the American Petroleum Institute (API). The position taken by NPRA and API regarding ethanol becomes even clearer when looking at their self-presentation. According to NPRA's President, Bob Slaughter, "the NPRA is a national trade association with 450 members, including those who own or operate virtually all U.S. refining capacity, and most U.S. petrochemical manufacturers" (Slaughter 2004: 2), whereas the API presents themselves on their official homepage as the "only national trade association that represents all aspects of America's oil and natural gas industry" (API n.d.) with around 400 corporate members. At the time of EPA's introduction of the Renewable Oxygenate Rule, the arguments that these interest groups put forward against ethanol were centered on the lack of definite evidence concerning its ability to better air quality and energy security and the high price of manufacturing and supply of the product. For example, the "API charged that the Daschle amendment will cost \$100 billion and that meeting its requirements will likely add 25 cents a gallon to consumer's fuel costs [which] simply did not jive with estimates from the EPA and other credible industry sources" (Daschle, U.S. 101st Congress 1990: 3511), and claimed that ethanol would cause smog worsen (Wald 1992). Ethanol proponents were even more gearing up when the EPA issued the Renewable Oxygenate Rule (ROR) in 1994 that demanded a minimum of 30 percent of the oxygenates used in reformulated gasoline to be derived from renewable sources. While Raymond Lewis, President of the American Methanol Institute, called this proposal "economically, environmentally and legally unsound" (quoted in Beamish 1993), the API and the NPRA "filed suit against the EPA, contending that the ROS was illegal, and gave ethanol an unfair advantage in the RFG market over petroleum based oxygenates, such as MTBE" (Mayer et al. 1995). The literature also shows that with legislative action to expand the use of ethanol required with the ROR, environmental interest groups, such as the Sierra Club, emerged in opposition. Even though there are only some topics on which the Sierra Club and the API have the same opinion, there was consensus among the two groups on the ambiguity of the environmental and health benefits of ethanol as well as that the EPA's plan not being beneficial for consumers, producers and environmental security (Adler 1996: 30). For example, Allan Blakeman Early of the Sierra

Club stated that “It’s not the role of the CAA to make mandatory markets for ethanol” (quoted in Adler 1996: 31) and therefore he called the proposal “illegal” and a “bad policy” (quoted in Adler 1996: 30), whereas Carl Pope stated in the Sierra Magazine the following: “Senator Dianne Feinstein (D-CA) called the proposal a ‘wealth transfer’ to corn-producing states from the rest of the country, but she and other dissenters were overwhelmed by farm-state senators of both parties, as well as the recipients of campaign largesse from Archer Daniels Midland” (quoted in Bullock 2007: 150). Additionally, the literature assessment also brings to light that the argumentation of these interest groups on opposite sides of the spectrum of opinion did not stay in one place and instead varied once MTBE was found to contaminate groundwater. Away from criticizing air quality benefits of the oxygenates, the NPRA, for example, changed their strategy by arguing that instead of heavy subsidizing ethanol, market powers ought to establish economic goals. One good example for this is NPRA’s President Bob Slaughter’s testimonial held before the Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce in a hearing discussing a “Comprehensive National Energy Policy”:

Ethanol already enjoys a generous subsidy in the form of a 52 cent exemption from the gasoline excise tax; this subsidy costs the Highway Trust Fund in excess of \$1.2 billion annually. A federal tariff offsets the benefit of the gasoline tax exemption for most imports, making them uncompetitive with domestic ethanol production. Ethanol also receives tax incentives in 17 states (Slaughter, U.S 108th Congress 2003: 442).

In addition, together with various environmental groups, the NPRA also increasingly doubted that oxygenates were required so as to meet the terms of the CAA of 1990 and argued that ethanol production would also increase without the two percent requirement for RFG and a RFS:

Many NPRA members already use significant volumes of ethanol, and they expect to increase their ethanol usage in the years ahead. EIA and other policy analysts also predict a significant increase in ethanol markets in coming years, without a mandate. In short, given the relative scarcity of quality gasoline blend stocks, ethanol has a bright future without any need to resort to the outrageous expedient of a national ethanol mandate. [...]The 5 billion gallon ethanol mandate included in last year’s Senate ethanol bill was the product of private discussions among a limited group of stakeholders. It was never considered by the Committee of jurisdiction in the Senate. NPRA opposes that provision. We urge the subcommittee to make a clean break with the market intervention theory typified by both the existing 2% requirement and calls for a cumbersome, expensive and unnecessary ethanol mandate (Slaughter, U.S 108th Congress 2003: 442).

However, this strong opposition of the oil industry to pro ethanol legislation was softened up from 2003 to 2005; as of 2003, nearly 200 public water suppliers from around the country had filed MTBE lawsuits against the oil industry (Rechtshaffen and Antolini 2007: 228), which would have had great financial consequences for them. This was because under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the oil industry would be obligated to take accountability for MTBE water pollution (Rechtshaffen and Antolini 2007). As a consequence, MTBE makers and the oil industry shifted their effort from opposition of the ethanol mandate more to that of lobbying for a provision that would shield them from water contamination lawsuits. With success, a provision, which relieved MTBE producers and suppliers from the legal responsibility they were being subjected to in the courts, was soon after introduced by House Majority Leader Tom DeLay (R-TX). As a result, Congress was to enact an MTBE “safe harbor” (the draft of Section 1502 of the EPLA of 2003 contains a safe-harbor provision) as part of the EPLA of 2003 (Flynn 2004). As it turns out and is made clear from the research material, the effort put towards the liability waiver was a crucial component of the implementation of the RFS because it increasingly fragmented the oil industry’s stance on ethanol. This was due to API wanting the Energy bill passed because as API Downstream Industry Segment Manager, Edward Murphy, said, it would “enhance fuel fungibility and minimize price volatility that would otherwise occur if we keep the current system” (quoted in Oil Express 2002), whereas “the National and Refiners Association, whose membership includes MTBE producers, opposed the bill despite a provision that [would have] help[ed] MTBE plants transition to alternatives such as isooctane production” (quoted in Oil Express 2002). As the Liability waiver for MTBE and gasoline producers was quite contentious and enactment of the Energy Policy Act depended on the proposal (Nagel 2007: 343), a various amount of negotiating occurred amongst the API and the RFA. The following statement of Allan Blakeman Early on the behalf of The American Lung Association (ALA) exemplifies this very well:

When the energy bill in the Senate gained momentum last year, the ethanol industry and the API announced an agreement that introduced a completely new element to the discussion. While agreeing on a level of mandatory ethanol use through an RFS that would grow the ethanol industry, the API and the ethanol industry announced that a necessary element of any compromise legislation must include a “safe harbor” that shielded both industries from defective product liability under federal or state law for the use of either MTBE or renewable fuels including ethanol (Early, U.S 108th Congress 2003: 95).

The following statement by API Downstream Industry Segment, Manager Edward Murphy also makes clear that API, as told to Oil Express by a oxygenate analyst, had already “thr[own] in the towel on MTBE” (Oil Express 2002):

We believe Congress should repeal the oxygen content requirement for RFG that is in the Clean Air Act and require a national phasedown of MTBE. As part of a package that meet these objectives, we also support a renewable fuels standard that phases up to 5 billion gallons over several years nationally, with an averaging and credit and trading program to allow the use of renewable fuels where most feasible and cost-effective (Murphy, U.S 108th Congress 2003: 431-432).

Even though the EPA Act of 2003 failed due to the controversy surrounding the “safe harbor” proposal, in summary, by coalition and cooperating with rival stakeholder, API, and supporting a “safe harbor”, the RFA killed two birds with one stone. That is because in return, on the one hand, they received a powerful and generally oppositional interest group supporting the RFS, which also fragmented and weakened the oppositional stance on ethanol, and on the other hand, as nicely stated by an oxygenate analyst “they got their only rival [namely MTBE], out of gas” (Oil Express 2002).

In condensing the previously stated information, despite an equal showing in Congress by pro-ethanol and anti-ethanol interest groups, the alike amount of obtainable resources for each side seems to have blocked ethanol supporting interest groups from attaining a majority of the available influence. Despite this, at the beginning of 2000, the well-known debate caused by MTBE water pollution seems to have given ethanol supporters a new chance to negotiate with conventionally anti-ethanol interest groups.

5.3.3 Scientific Community

Not only does Kingdon underline the importance of academics, researchers and scientist, “also Pralle [2003] and Timmermans and van Scholten [2010] show that experts and the scientific community are important actors in agenda-setting processes” (Baumgartner et al. n.d.).

Nevertheless, with the intricate and vastly technical character of the topic, the examination of the research material reveals that indeed there is hardly any evidence pointing to a large amount of agreement within the scientific community. Further, the multifaceted scope of the aspects that need to be contemplated on in order to construct a comprehensive cost-benefit or impact analysis leads to an overwhelming and varied amount of scientific input. This input

and data came from many experts with various respective backgrounds and who worked for a variety of organizations. As was already shown in chapter 5.3.1 and 5.3.2, such backgrounds included involvement with federal agencies, interest groups and independent research facilities. The extensive amount of information generated by this community has caused the undertaking of interpreting these facts and figures to be a strenuous endeavor. Supplying an all-inclusive investigation of all scientific data is beyond the scope of this paper. Therefore, the aim of this chapter is more to complement the view on the scientific community's role in the negotiation process of a RFS, which was already touched upon in the policy stream. To do so, a short synopsis of three of the problem areas where the scientific community has been most active will be provided.

a) Ethanol's Net Energy Value

As the previous sections of the policy stream already might lead one to suspect, one of the most debated issues related to ethanol during the 106th and 109th Congress was whether ethanol's NEV is positive or negative. Investigations that determined that ethanol has a positive net energy balance and that were subsequently highlighted or cited by mostly pro-ethanol Congress members, include (1) *How Much Energy Does it take to Make a Gallon of Ethanol (1995)*, conducted by David Lorenz and David Morris, published by the Institute for Local-Self Reliance (ILSR), (2) *Fossil Energy use in the Manufacture of Corn Ethanol (2002)*, which was performed by Michael S. Graboski of the Colorado School of Mines and prepared for the NCGA, (3) *Allocation Procedure in Ethanol Production System from Corn Grain (2002,)* and (4) *Life Cycle Assessment of Various Cropping Systems Utilized for Producing Biofuels: Bioethanol and Biodiesel (2005)*, which were both performed by Bruce Dale and Seungdu Kim from Michigan State University. However, the most referred to studies in Congress were (5) *The Energy Balance of Corn Ethanol: An Update (2002)* and (6) *The Energy Balance of Corn Ethanol Revisited (2003)*. All are joint studies between the DoE and the USDA and were conducted by Hossien Shapouri and James Duffield, who both work for the USDA's Office of Energy Policy and New Uses, and Michael Wang, Director of Research at the DoE's Argonne National Laboratory in Illinois. Consistent with the other analyses conducted by Lorenz and Morris (1995), Graboski (2002), and Dale and Kim (2002; 2005), the studies from Shapouri, Duffield and Wang (2002; 2003) determined the following:

Corn ethanol is energy efficient, as indicated by an energy ratio of 1.34, i.e., for every joule dedicated to producing ethanol, there is a 34% energy gain. Furthermore, producing ethanol from domestic corn stocks achieves a net gain in a more desirable form of energy, which helps the U.S. reduce its dependence on imported oil (Shapouri et al. 2003: 967).

Even though the examination of the ethanol related congressional hearings, which occurred from 2000 to 2005, demonstrates that there existed some amount of agreement within policy groups regarding ethanol's worth as a positive-net-energy provider at that time, it was studies by David Pimentel (2001; 2003; 2005) and Ted Patzek (2005) that ethanol opponents referred to simply because they determined ethanol production to necessitate more energy than it delivered:

In the U.S. ethanol system, considerably more energy, including high-grade fossil fuel, is required to produce ethanol than is available in the energy ethanol output. Specifically about 29% more energy is used to produce a gallon of ethanol (Pimentel 2003: 127).

However, the argument that more energy is needed to produce ethanol than it delivers and the studies that supported this idea were discredited as soon they were addressed in Congress and were therefore more or less put out of action. A representative, who put effort into shining a positive light on ethanol net energy balance and who was "honored for her dedication to the ethanol industry, both as a member of Congress and in private industry" (The Daily Republic 2012), was U.S. Representative, Herseth Sandlin. Despite describing Pimentels and Patzeks study (2005) as "loos[e]" (Herseth, U.S 109th Congress 2005b: 33), she made the following clear during several hearings held on Renewable Fuels and the RFS:

One of the most persistent ethanol myths refers to its energy balance. This myth suggests that the process used to create a gallon of ethanol consumes more energy than that gallon of ethanol contains. And despite overwhelming and irrefutable evidence to the contrary, this unfortunate fallacy persists. But the facts are clear, whether produced from corn or other grains or from biomass materials like wood waste, ethanol production has become an extremely energy-efficient process (Herseth, U.S 109th Congress 2005a: 1763-1764).

It can thus be concluded that the debate on whether ethanol's net energy value was positive or negative was clearly in favor of the former. Although a positive net energy balance of ethanol was put in doubt and questioned multiple times by ethanol opponents in Congress, the majority of studies conducted by highly reputable institutions achieved some degree of consensus regarding ethanol's net energy value.

b) Ethanol's Effect on Air Quality and the Environment

In addition to ethanol's net energy value, its ability to improve air quality and its benefit and impact on the environment, was also widely discussed. Especially in connection with the topic of eliminating MTBE as an oxygenate, these points of discussion became relevant

matters. As a consequence, several studies were conducted within the scientific community examining the connection between the detection of MTBE in groundwater in 1995 and the passing the EPCRA in 2005. These studies were intended to evaluate the health, air, and water quality effects of ethanol and had quite controversial results in this respect. Among the analyses that concluded that there are potentially better alternatives than ethanol for addressing environmental impacts was the study *Health and Environmental Assessment of the Use of Ethanol as a Fuel Oxygenate* (CARB 1999). It was conducted by the California Air Resources Board (CARB), requested by Californian Governor Gray Davis and concluded that as “long as the CARB regulations address the potential for ethanol to increase evaporative emissions and cause more rail and truck traffic, the substitution of ethanol and alkylates for MTBE in California’s fuel supply will not have any significant air quality impacts” (CARB 1999: 6). However, there were also several studies that noted that vehicle CO emissions are significantly reduced by using ethanol as a fuel additive. Among these was the study *Interagency Assessment of Oxygenated Fuels* (1997), which was conducted by the National Science and Technology Council (NSTC) after EPA officials expressed their desire for advisory commentaries on the usage of oxygenated gasoline from external, independent entities. In favor of MTBE and ethanol, this study determined that vehicle CO emissions are lowered from 2 to 10 percent per percent oxygen in the fuel (NSTC 1997). Also highly visible in the scientific community representing ethanol as contributor to air quality was the DoE funded Center for Transportation Research of the Argonne National Laboratory. Since 1997 this research institute has evaluated fuel-ethanol’s energy balance and GHG emission impacts based on Michael Wang’s GREET lifecycle model for transportation fuels and vehicle technology. By concluding in several of their publications (Wang et al. 1997; Wang et al. 1999; Wallace et al. 2001; Brinkman et al. 2005) that “Argonne’s analysis, in agreement with many other recently completed studies, concludes that corn-based ethanol achieves energy and GHG emission reduction benefits, relative to gasoline” (Wang 2005a), coupled with other studies that noted that the oxygen in ethanol leads to a significant reduction in mobile CO emissions (Carter et al. 2003, Whitten 2004), it appears that some type of provisional agreement was potentially reached concerning ethanol’s capacity to lessen CO emissions. Nevertheless, during the same period of debates, several studies also stated increased emissions of hazardous air pollutants, which leads to the next point.

c) Ethanol’s Effect on Public Health

While most of the studies indicated that an oxygenate additive would most likely result in a

emissions reductions for CO, some also concluded that it may additionally cause increased emissions from additional contaminating gases, such as nitrogen oxide (NO_x), volatile organic compounds (VOCs) and peroxyacyl nitrates (PAN) (Anderson 1997; Andress 2000; Winebrake et al. 2001). One prominent point made within this study was the Northeast States for Coordinated Air Use Management (NESCAUM) report *Health, Environmental, and Economic Impacts of Adding Ethanol to Gasoline in the Northeast States (2001)*, which concluded the following:

The widespread replacement of MtBE with ethanol could result in increased ozone precursor and toxic emissions from vehicles operating on either RFG or conventional gasoline. This may include increases in: tailpipe emissions (specifically NO_x); evaporative VOC and toxic emissions; and indirect transportation emissions of NO_x, particulate and toxics (NESCAUM 2001: 3).

Another important study that was often cited in Congress by the ethanol industry as well by environmental and health organizations was the National Research Council's (NRC) study titled *Ozone-Forming Potential of Reformulated Gasoline (1999)*. This study was conducted by the Committee on Ozone-Forming Potential of Reformulated Gasoline, which was formed by the NRC after the EPA asked for an independent study on the question of RFG's ozone forming potential. While this study as well as several other studies discovered that ethanol in gasoline helps to reduce CO - information which was used by the ethanol industry to argue in favor for ethanol in Congress - it also found that the higher volatility of ethanol leads to a higher emission of VOCs and therefore concluded that "the increase in the evaporative emissions from the ethanol-containing fuels was significantly larger than the slight benefit obtained from the lowering of the CO exhaust emissions using the ethanol-containing fuel" (NRC 1999: 201). This information was mainly used in Congress by environmental groups to question ethanol's impact on air quality and the environment. For example, Dr. Blake Early, on the behalf of the ALA, stated the following in a hearing titled "Clean Air Act: Environmental Benefits and Impacts of Ethanol":

Ethanol in gasoline helps reduce carbon monoxide (CO), [...] ethanol provides clean octane, [but] ethanol increases gasoline volatility, [and] ethanol fuel can increase volatility of non-ethanol fuels [which] leads the ALA to the conclusion that ethanol should not be mandated for use in summertime gasoline-RFG or conventional-in areas with smog problems (Early, U.S 106th Congress 2000: 52-53).

However, it seems ethanol's impact on public health was very controversial, not least because of the circumstances that also witnessed several studies cited in Congress that

agreed with the statement that ethanol in gasoline helps reduce CO, but stated different results in terms of VOC. For instance, in conflict with the described studies above, the EPA concluded in its publication *Phase II Reformulated Gasoline: The Next Major Step Toward Cleaner Air (1999)* that “by using reformulated gasoline, drivers [in 17 states and the District of Columbia] ha[d] cut emissions of pollutants that cause smog 17 percent, compared to conventional gasoline” (EPA 1999), and that VOCs had been reduced by 17 percent, NOx was reduced by 2 percent and “benzene, a known cancer-causing compound, ha[d] been reduced 43 percent” (EPA 1999). In addition, the study found that Phase II of the RFG, beginning in 2000, “will remove an additional 41,000 tons of smog-forming pollutants from the air, which is like taking 6 million cars that burn conventional gasoline off the road” (EPA 1999). The results of this study, as the analysis of the congressional hearings uncovers, were understandably used by representatives in favor of ethanol and by the ethanol industry itself. A supporting role of the EPAs position on ethanol’s impact on public health also included Dr. Michael Graboski’s research on the impact on summer ozone when oxygen was removed. Dr. Michael Graboski is the director of the Colorado Institute for Fuels and High Altitude Engine Research and stated his results in a hearing addressing the environmental benefits and impacts of ethanol under the CAA:

Both VOC and CO has been proven to be ozone-forming agents. Figure 2 shows my estimate of how removing 2 percent oxygen from RFG will impact the VOC and CO inventory. Figure 2 shows that ozone-forming emissions may increase by almost 3 percent when oxygenates are removed from RFG. [...]I believe that the use of oxygen in gasoline has important environmental and public health benefits that must be maintained in any changes in the Clean Air Act (Graboski, U.S 106th Congress 2000: 69).

It is clear, therefore, that no comprehensive scientific consensus appears to have been reached. However, as the review of the congressional hearings demonstrates, this had a considerable influence on how ethanol was displayed in terms of ethanol’s impact on air quality, the environment and public health. While the scientific community could broadly agree that ethanol led to a reduction in the emission of CO, regarding the higher ethanol related emissions of toxic gases (NOx, VOC, PAN) and its impact on ozone formation potential, a consensus could not be concluded. Due to this fact, the concrete positive attributes of ethanol, such as its CO reduction potential, were often highlighted in Congress, but its controversial negative characteristics related to ozone formation potential were given less attention, as Senator Vionovich of Ohio, who was one of many, well demonstrated:

Ethanol has been beneficial to the environment and the agricultural community. It has been

used successfully to improve air quality in areas that use Reformulated Gasoline (RFG). It has also reduced carbon monoxide emissions under the Oxygenated Fuels program in carbon monoxide nonattainment areas (Voinovich, U.S 106th Congress 2000: 29).

Therefore, it can be concluded that despite the scientific community clearly pointing out the negatives of ethanol in terms of air quality, environment and public health, the focus in Congress was mainly on the positive attribute of ethanol reducing CO, as it was clear and agreed upon. The complicated and uncertain nature of ethanol emission pollutants, such as NOx, VOC, PAN, and its relation to ozone formation was more or less lost in the background of ethanol's CO reduction potential.

d) Ethanol's Impact on Rural Economy and on the Energy Security Problem

A more agreed on topic at the time was the question of whether ethanol could assist in realizing the energy security issue and restimulate the rural economy. A study favorably cited by ethanol proponents was the report *Ability of the U.S Ethanol Industry to Replace MTBE (2000)*. It was prepared for the GEC, conducted by AUS Consultants and concluded the following:

The new ethanol capacity to replace MTBE is estimated at nearly \$1.9 billion, [but] the level of construction activity associated with this expansion combined with the increased demand for corn and other grain to produce the additional ethanol will add \$11.7 billion to real GDP by 2004, increase household income by \$2.5 billion, and generate more than 47,800 new jobs throughout the entire economy (Urbanchuk 2000: 2).

Similar results in terms of ethanol's impact on the economy were concluded by John Urbanchuk's and Jeff Kapell's study *Ethanol and the Local Community* (2002) and by the USDA study *Economic Analysis of Replacing MTBE with Ethanol in the United States (USDA 1999)*. As Senator Peter Fitzgerald stated in the hearing "Clean Air Act: Environmental Benefits and Impacts of Ethanol", the USDA found that "replacing MTBE with the corn-based oxygenate additive ethanol would create approximately 13,000 new jobs in rural America and reduce farm program costs and loan deficiency payments through an expanded value-added market for grain" (Fitzgerald, U.S 106th Congress 2000: 64).

Another study, which confronted the question of to what extent ethanol can revive the rural economy, was the study of *Putting Bounds on Estimating Economywide Impacts from Adopting the Renewable Fuels Standard (2002)*. Conducted by various scientists of the

USDA Economic Research Service, this study examined which impacts a RFS that requires 8 billion gallons in 2012 would have on the rural economy. Based on the large-scale econometric model FAPSIM, it concluded that “adopting the RFS would stimulate between \$3.4 billion and \$6.9 billion in new output and generate 12,600 to 31,400 jobs” (Vogel et al. 2002). These and similar results from subsequent USDA studies, as was shown in chapter 5.3.1 and 5.3.2, were preferred and used in congress by USDA Chief Economist Keith Collins, several pro ethanol Congress members, and by various interest groups favoring the expanded production of ethanol.

In terms of ethanol improving U.S. energy security, there were, among others, several researchers from Illinois visible in Congress. Dr. Brian Donelly, Executive Director of Southern Illinois University at Edwardsville National Ethanol Research Pilot Plant, for example, made clear that ethanol “pilot plant holds the potential to provide a bright future for ethanol and the environmental and energy security that it provides” (Donelly, U.S 106th Congress 2000: 36). Furthermore, most of the studies stated above, which determined that “producing ethanol from domestic corn stocks achieves a net gain in a more desirable form of energy [also concluded that this] helps the United States to reduce its dependence on imported oil” (Shapouri et al 2002: 12). Among these was also *Ethanol's Role in Mitigating the Adverse Impact of Rising Energy Costs on U.S. Economic Growth (2001)*, which was another ethanol privileging report from John Urbanchuk and AUS Consultants. This report stated that the “increased use of domestically produced ethanol will reduce the amount of oil we need to import and will reduce the amount of ‘tax’ that American consumers are forced to pay” (Urbanchuk 2001b). The statement of Merrylin Zaw-Mon, Director of EPA’s Transportation & Regional Programs Divisions, shows that the point of view that ethanol would improve U.S. energy security was also taken by the EPA because, as she asserted, the “preserving and promoting [of] continued growth in renewable fuels, particularly ethanol...will increase farm income, create jobs in rural America, improve our energy security and protect the environment” (Zaw-Mon, U.S 106th Congress 2000: 9).

The most prominent and often cited researcher who did not agree with this opinion was David Pimentel, Professor at the Department of Entomology at Cornell University. In several published papers that criticized assertions of ethanol’s possible ability to provide net-energy gains (Pimentel 2001; 2003, 2005) and in other studies (Pimentel 1991; 1998) that were issued, he made clear that “ethanol production in the United States does not benefit the nation’s energy security, its agriculture, the economy, the environment, as well as

government and consumer expenditures” (Pimentel 2003: 128). UC Berkeley Professor Tad Patzek, who David Pimentel coauthored several studies with, also shared a similar view. According to Patzek, “in terms of renewable fuels, ethanol is the worst solution, [because] it has the highest energy cost with the least benefit” (quoted in Science Daily 2005).

In short, despite there being studies – although a minimal amount – that called into question ethanol’s benefits for the rural economy and the energy security problem, when looking at the many statements of Congress members that emphasized the positive impact, it is clear that benefits for the economy and rural development were given precedence over any possible negatives and were a point of consensus amongst Congress members.

e) The Potential of Cellulosic Ethanol

The scientific community mostly agreed upon the potential of cellulosic ethanol, also called second-generation biofuel, in enhancing environmental health and energy security. This was not least because the majority of studies had determined that “the lignocellulose based ethanol system is more favorable than the corn grain based ethanol system in terms of crude oil used, nonrenewable energy used, and greenhouse gas emissions” (Dale and Kim n.d.: 1). This was mainly because these studies evaluated higher energy returns and lower agricultural inputs and therefore looked less at impacts on the environment. For example, Michael Wang of the Center for Transportation Research of the Argonne National Laboratory concluded in its study, *Updated Energy and Greenhouse Gas Emission Results of Fuel Ethanol (2005)*, that the “use of a gallon of cellulosic ethanol helps reduce GHG emissions by more than 85 percent relative to GHG emissions of RFG” (Wang 2005a) and stated in *A Brief Comparison between the New Pimentel/Patzek Study and Other Studies (2005)* that “Cellulosic ethanol requires 90 percent less fossil energy” (Wang 2005b). Richard H. Truly, Director of the National Renewable Energy Laboratory (NREL), presented results that were consistent with the finding of the Argonne National Laboratory in Congress. He stated that “lignocellulosic biomass is critical to future large-scale replacement of petroleum [and that] while fuel ethanol from corn grain has a ratio of 1.3, fuel ethanol made from the lignocellulosic biomass such as corn stover has a ratio of 5.1” (Truly U.S 108th Congress 2004: 47-48). The most cited researchers, David Pimentel and Ted Patzek, concluded less positive results for cellulosic ethanol. They found that “ethanol production using switchgrass required 50 percent more fossil energy [and] ethanol production using wood biomass required 57 percent more fossil energy than the ethanol fuel produced” (Pimentel and Patzek

2005: 65). Anyway, these findings were strongly criticized by various researchers who conducted similar life cycle assessments. Dr. Michael Wang, for example, responded immediately and countered that Pimentel and Patzek's calculations were not based on the commonly accepted cellulosic ethanol plant designs (Wang 2005b), whereas Dr. Michael Graboski from the Colorado School of Mines and Dr. John McClelland from the NCGA argued that "much of the discrepancy between Pimentel's study and other recent analyses may be traced to his use of very out-of-date information" (Graboski and McClelland n.d.). However, it is important to note that there was a point of consensus regarding cellulosic ethanol's positive impact on the environment and energy security amongst the scientific community. It is also important to mention that these views were quite often represented in and also shared by Congress, as this statement from David D. Doniger, Police Director of the Climate Center of the NRDC shows:

New ethanol conversion processes would greatly improve current methods of making ethanol from corn, which require substantial amounts of energy. Ethanol from corn now supplies about one percent of motor fuel. Much larger oil savings and pollution reductions are possible over the medium term by deploying these new processes. New technologies would make it economical to make ethanol from crop wastes and other woody parts of plants (called "cellulosic" biomass) (Doniger, U.S 107th Congress 2001: 94).

However, as the many statements in Congress as well as the statement from Richard H. Truly, Director of NREL made clear, "for biomass to significantly reduce petroleum usage, we need to reduce the cost of producing ethanol from the much more plentiful lignocellulosic forms of biomass" (Truly U.S 108th Congress 2004: 48). Considering that the cost of producing one gallon of cellulosic ethanol in 2006 was \$2.25, while the production of a comparable sum of corn-ethanol was \$1.03 (Goldemberg 2007: 809), the cost reduction of cellulosic ethanol played a decisive role in its near-term viability. In this context, various participants in the scientific community contended that as well as the increased funding from the DoE, the RFS would provide the necessary additional incentives to develop affordable methods of collection, transportation, and conversion to produce cost effective cellulosic ethanol. This was clearly expressed by USDA Chief Economist Keith Collins in a hearing addressing "Agriculture's Role in a Renewable Fuels Standard" before the Committee on Agriculture:

I think the existence of an 8 billion gallon renewable fuel standard in and of itself would provide some incentive to invest in cellulosic ethanol plants. I think an 8 billion gallon standard is going to attract a lot of capital outside of agriculture for ethanol that we haven't seen up until now.

Almost all the expansion in ethanol production in the last 4 years has been through farmer owned cooperative plants. And I think we are going to see “Wall Street money” take a look at ethanol in the years to come and I think they are going to look at various forms of ethanol including cellulosic ethanol (Collins, U.S 109th Congress 2005: 22).

The further development of cellulosic ethanol therefore seems to have exerted influence on the implementation of a RFS because, as the evaluation of the congressional hearings shows, policy makers paid great attention to research on cellulosic ethanol:

Let me ask you, Dr. Collins, you mentioned there are currently no commercially operational cellulosic biomass ethanol plants but that an 8 billion gallon per year RFS could accelerate the timeline for commercial production of cellulosic ethanol. Could you touch more on a timeline for commercial production for these cellulosic biofuels and how large a role it will play in meeting RFS standards passed 2012? (Goodlatte, U.S 109th Congress 2005: 22).

In summary, it can be concluded that regardless of the increased amount of division amongst scientists, which indicates greatly to Kingdon’s *primeval soup*, a predominant consensus at that time was accomplished within the scientific community on ethanol’s capacity to decrease CO emissions and stimulate rural farmers and towns. Additionally, there was a consensus additionally reached in that cellulosic ethanol has an even higher potential to reduce use of nonrenewable energy sources and the emission of GHG. In terms of ethanol’s NEV and its impact on public health, it can be asserted that the studies that concluded a positive NEV as well as that ethanol has a positive impact on the public’s health were dominant in Congress at that time. Therefore, it can logically be assumed that this had a definitive, although not measurable, influence on Congress members. Further, being that many such studies came from governmental entities, most notably the USDA, DoE and EPA – who delivered numerous research results that confirmed both corn and cellulosic ethanol’s net energy gains as well as its potential to reduce non-renewable resources, GHG emissions and smog forming pollutants - it can be said that policy makers were not only influenced by the study results, but also by political pressure. It is therefore shown by chapter 5.3 that several interest groups and the mentioned governmental agencies had crucial influence in producing ideas and placing pressure in the policy stream. Consequently, some of these members might also be identified as policy entrepreneurs, which would lead us to the subsequent section of this thesis, the political stream. In chapter 5.3, the politics stream and the most crucial policy entrepreneurs, whose work was a key contributing factor in *softening-up* the system and coupling the streams, will be identified.

5.4 Political Stream

This chapter will first address the national mood, interest group politics, and turnover in the administrative and legislative branches, as it is these developments of macro political conditions which, according to Kingdon, ultimately contribute to the formation of policy.

5.4.1 Political Conditions

a) National Mood

Undeniably, many of the topics that proponents of ethanol endeavored to communicate in relation to ethanol being an answer to current issues and problems resounded greatly with the majority of the public during the time of debates and implementation of a RFS in the EPAct of 2005. One good source for such perception came from several NREL studies, titled *Consumer Views on Transportation and Energy (2003; 2005)*, which had the purpose to “provide the Office of Energy Efficiency and Renewable Energy (EERE) with an idea of how the American public views various transportation, energy, and environmental issues” (Kubic 2005: 1). One of their results was that the level of public concern of the nation’s energy supply and dependence on imported oil appeared to be high after 2000 because 47 percent of respondents stated that they believed that the United States to be very vulnerable to an energy crisis (Steiner 2003: 9) and 86 percent of the respondents indicated that they “are very or somewhat concerned the United States is dependent on imported oil” (Steiner 2003: VII). Further, the period between 2000 and 2005 seems to have also been a time where the decrease on foreign oil dependence played an important role. As shown by NREL, 86 percent of those surveyed “strongly or somewhat agree that decreasing our dependence on foreign oil is important to our national security” (Steiner 2003: VII). A Gallup Poll also revealed growing worry regarding global warming. Since Gallup started measuring the degree of public worry about the greenhouse effect, the majority of respondents worried “a great deal” about global warming, extending from 24 percent in 1997 to 40 percent in 2000 (Saad 2002: 2). National surveying also constantly showed that an increased public partiality for renewable energy existed. A Gallup Poll, which took place in 2001, indicated that 91 percent of Americans supported spending on alternative forms of energy (CRES 2002: 2; Steiner 2003: 22). While some public polls provided subjective indications of a pro ethanol national mood, as one could already notice, proof also exists showing that policymakers identified the existence of advantageous political circumstances for ethanol. As (will be shown section 5.4.3) the appraisal of the congressional hearings shows, environmental,

agricultural and energy security conditions and problems were more and more linked and articulated in ways that rationalized the enactment of courses of political action that would multiply ethanol's position within the U.S.

b) Interest Groups Politics

An additional component that added to favorable political circumstances for ethanol is in connection with the manner or nature in which the interest groups attempted to impose their interests. As was apparent from the Congressional Records, proponent and opponent interest groups demonstrated different approaches towards the issue of whether corn ethanol along with the RFS were valid options for the national problems at stake. Concerning ethanol proponent interest groups, the evaluated congressional hearings clearly established that there was a very high amount of agreeability and collaboration shown between the various players, even though ethanol had an established sizeable following due to its greatly varying stakeholders. For instance, appearance regarding the most debated issues related to ethanol was consistently high during the 106th and 109th Congress. This also reflects the increased quantity of synchronization and collaboration shown amongst the stakeholders of the major interest groups, such as the RFA and GEC, and between the pro ethanol interest groups themselves. Despite a few diverged positions regarding whether Congress should repeal the oxygen content requirement for RFG in lieu of a RFS, overall, ethanol proponents were gradually able to represent, in a coherent manner, a cohesive unit that managed to push forward the structure they believed ethanol legislation should take. Consequently, the different representatives of the proponent interest groups presented ethanol's NEV, its impact on air quality and the environment, and its impact on public health, the rural economy and on the energy security problem in a uniform way throughout the debates. From 2000 on, it can also be ascertained that the employment of a RFS that would dictate that ethanol be mixed into the nation's gasoline provision was extensively backed by members of the RFA, GEC and other pro ethanol interest groups as the best result.

In contrast to the advocate coalitions of ethanol, as is apparent from the congressional Record, the characteristics of oppositional interest groups were more fragmented. Also to be mentioned is that in comparison to the major pro ethanol groups, such as RFA and GEC, the leading oppositional interest groups, the NPRA and API, were not as visible in Congress and their appearance seemed more to be "going it alone". In particular, the "safe harbor provision" appeared to have dissolved the already limited amount of equalness of structured groups that had formerly acted in opposition of the extensive political progression of ethanol.

In particular, in putting effort towards the liability waiver and also by coalition and cooperating with RFA, API caused a rift between the thoroughly backed and extremely outspoken MTBE producers and the rest of the oil and gas industry, which further fragmented its stance on ethanol. It therefore can be said that the interest group politics of the oppositional actors were characterized by increasing discrepancies and a general lack of advanced synchronization and collaboration displayed by the stakeholders, which seems to have hampered these groups from achieving further political backing. However, a point on which both proponents and opponents of ethanol agreed and which united the opposing sides was that the U.S. was suffering from an energy and environmental crisis and that a solution needed to be found.

c) Legislative and Administrative Turnover

An additional component that seems to have been a factor for an advantageous political environment in promoting the idea of expanded ethanol use with the RFS was the presidential elections, which took place in 2000 and 2004.

Because corn farmers have the ability to greatly influence politics in Corn Belt States, ethanol had quite a political and electoral significance for the 2000 presidential election between the Republican candidate, George W. Bush, and the Democrat candidate, Al Gore. With especially Iowa, Illinois, Ohio and Missouri being decisive states for the presidential election, both candidates focused campaign resources on Midwestern constituents. Consequently, both candidates made clear that they have “not ducked when votes for [...] agricultural interests were on the floor” (quoted in SEC 1999), that “it is well known that [they] have always supported ethanol” (quoted in SEC 1999) and that they “support tax incentives for use of ethanol [because] not only is it good for the farmer, it is good for the quality of air all across America” (quoted in SEC 1999). However, ethanol not only played a crucial role in the presidential election between the final party nominations, George W. Bush and Al Gore, but also seemed to be essential for the Republican Party’s presidential candidates race. This emerges clearly from the Republican Presidential Debates in Des Moines-Iowa, and from Manchester-New Hampshire. It is at this event that John McCain expressed his disapproval of ethanol: “Ethanol is not worth it. It does not help the consumer. Those ethanol subsidies should be phased out...we don't need ethanol subsidies. It doesn't help anybody” (quoted in APP 1999). Conversely, George W. Bush stated the following in response:

I support ethanol because it's good for our air [...]. It also reduces our dependency upon foreign oil. And if I become the president I'm going to spend money on research and development to find additional uses for agricultural products. This is a fantastic renewable resource. It's not only here in Iowa, it's all across the Midwest (quoted in APP 1999).

It is apparent from the above that especially George W. Bush campaigned intensely in support of ethanol between 1999 and 2000. The further support of ethanol during his terms of office was also evident in various initiatives, starting in early 2001, aimed at passing a National Energy Plan, of which all revisions promoted the use of federal programs to encourage alternative fuel options:

To keep our economy growing, we also need reliable supplies of affordable, environmentally responsible energy. Nearly four years ago, I submitted a comprehensive energy strategy. Four years of debate is enough! I urge Congress to pass legislation that makes America more secure and less dependent on foreign energy (quoted in Washington Post 2005).

Political circumstances agreeable to the enactment of favorable ethanol related policy were also augmented by the 2004 presidential election between the Republican candidate, George W. Bush, and the Democrat candidate, John Kerry. Being that the campaign between George W. Bush and John Kerry was always close and victory was never a given for either candidate, all issues had added importance, particularly the issue of ethanol. Ethanol was without question a hot topic in swing states, as these states had a close relation with corn cultivation and subsequent ethanol production and stood to be most directly affected by ethanol related policies; thus, both W. Bush and Kerry focused on campaigning in these states and asserted themselves as ethanol proponents in order to gain votes in such election crucial states. For example, even though John Kerry voted against tax breaks and mandates for ethanol in the 1990s, he flip flopped his stance on ethanol during the 2004 presidential campaigns and voiced a strong opinion in association with ethanol at the time of the Iowa caucuses, which gave him momentum towards the Democratic nomination. As well as Bush, Kerry also announced strong support for renewable fuels industry growth in America, and therefore also for ethanol, as is apparent from Kerry's statement during the Democrat Presidential Candidate Debate in Iowa: "I'm for ethanol, and I think it's a very important partial ingredient of the overall mix of alternative and renewable fuels we ought to commit to" (quoted in New York Times 2003). Both the election platforms of Bush and Kerry also had in common the backing of an ethanol mandate, which required the production of 5 billion gallons of ethanol a year by 2012 (Taylor and Van Doren 2004).

Concisely stated, it can therefore be said concerning the political conditions of the time that the national mood, cohesive organized interests and the critical need to obtain swing states' votes in the presidential election campaign all contributed to an environment that was friendly

and open to pro ethanol policy.

5.5 Coupling of the Streams: Policy Window and Policy Entrepreneurs

The contributing factors within the policy stream were just elucidated in how they supported the establishment of an RFS, and the political stream was examined in terms of influencing actors and entities, the ripe national mood amongst the public towards renewable energy, and scientific consensus - or a lack thereof. Further, the policy stream was able to demonstrate the resources and authority attributable to those involved with advocating for ethanol. However, despite each stream typically occurring and functioning separate from other entities, policy change does not advance in cleanly divided steps, but is contingent upon constant, disordered and most of the time hard to discern pairings. The problems identified in the problem stream could have been identified regardless of possible linkage with a feasible solution, proposals with a feasible solution could have been advanced without reacting to issues, and it could have been that the political climate was not receptive to accepting a decision. It seems that all this was not the case in terms of ethanol mandates. Instead, as will be shown in the subsequent paragraph, all three streams were coupled successfully in a single package, in which policy entrepreneurs played a crucial role.

a) The Successful Linking of Problems, Solutions and Favorable Political Conditions

As the assessment of the Congressional hearings exposes, by the early 2000s, environmental, agricultural and energy security problems had been increasingly linked with each other. Environmental problems, such as declining air quality, were increasingly often connected with the rising consumption of oil, energy security and farm economy was more and more understood as interdependent, rather than being isolated, and connections between rural economy and environmental problems, such as weather deviations as a result of climate change played a greater role in discussions. However, the convergence of environmental, agricultural and energy problems in congressional debates did not necessarily mean that ethanol's prominence on the decision agenda was a given. More importantly, beginning in the early 2000s, an additionally, not easily overlooked trend, could be identified within congressional debates: Ethanol was more and more linked, presented and discussed as a "one shot" solution for the Nexus between environmental, energy security and agricultural problems by various political actors. Especially politicians from major corn growing states and representatives of ethanol lobbying interest groups were able to skillfully

connect problems faced by Congress with renewable fuels, such as ethanol. For example, Leon Corzine, president of the NCGA, established these connections in several of his speeches in Congress:

Already the production of ethanol and biodiesel reduces imports by more than 140 million barrels of oil. The production of biobased products generates less greenhouse gas than traditional petroleum-based items. There are also tremendous opportunities for grower-owned processing facilities and rural America and agriculture as a whole. New jobs and investments will be brought into rural communities, as new processing and manufacturing facilities move into those communities to be near renewable feedstocks (Corzine, U.S 109th Congress 2005: 6807)

Also Iowa Senator and Chairman of the Senate Agriculture Committee, Tom Harkin (D-IA), underscored the connection between energy independence and rural economy in the release of his requested USDA study on the effects of the RFS as part of the EPAct of 2002:

Renewable fuels are the wave of the future not only for America's energy independence but for our rural economy as a whole. [...]The goal of a new national energy policy is to lessen our dependence on foreign oil and improve our own economy by producing more domestically - this study proves the RFS achieves both of these goals (Harkin 2002).

Another good example of Corn Belt State politicians putting effort into tying ethanol as a suitable solution to problems that had the serious attention of policy makers was given by Ohio Senator George Voinovich when directly addressing President Bush:

[...] the passage of an ethanol bill will protect our national security, economy, and our environment [and] ethanol is not only good for our Nation's economy, tripling the use of renewable fuels over the next decade will also reduce our national trade deficit (Voinovich, U.S 108th Congress 2003a: 6044)

Ethanol being tied to several problems was occurring throughout many debates during the 106th – 109th Congress. However, it seems not only the problem and policy streams were successfully coupled by the influence of policy entrepreneurs, also political conditions were fruitfully presented as being ripe for an Energy Policy Act that would create a greater market for ethanol. Illinois House Representative John Shimkus (R-IL), for example, cited several of President Bush's statements highlighting his support for a comprehensive Energy Policy Act, including a renewable fuel mandate:

I rise today to applaud President Bush on his recent statements in support of renewable fuels

such as ethanol and biodiesel. While touring a biodiesel facility in Virginia last week, President Bush stated, *'Our independence on foreign oil is like a foreign tax on the American Dream, and that tax keeps growing every year.'* [...] The President called on Americans to increase our use of renewable fuels and highlighted biodiesel as a fuel of the future. The President stated [...] *'as more Americans choose biodiesel over petroleum fuel, they can be proud knowing they are helping to make this country less dependent on foreign oil'* (Shimkus, U.S 109th Congress 2005: 3898).

Senator Voinovich also argued with favorable climate conditions for ethanol by making clear that the President also stands behind an Energy Policy that encourages the production of renewable fuels:

President Bush has stated repeatedly that energy security is a cornerstone for national security and it is crucial that we become less dependent on foreign sources of oil and look more to domestic sources to meet our energy needs. Ethanol is an excellent domestic source— it is a clean burning, home-grown renewable fuel that we can rely on for generations to come (Voinovich, U.S 108th Congress 2003b: 2447).

Consequently, ethanol extended its push forward by the appearance of specific problems described in the problem stream, by ethanol being presented as a potential alternative and partial solution to several of these problems, and by public opinion and the state of politics being ready for and willing to accept the idea of ethanol.

b) The Policy Window of Ethanol and the RFS

Due to the fact that, according to the MS model, coupling of the three streams occurs with the aid of policy entrepreneurs and, importantly, by the opening of a *policy window*, this study concludes that there must have been a powerful window of opportunity for ethanol. Such windows either open in response to changes in the political stream, such as change in administration or turnover of political actors, or by the appearance of new problems, for example, when indicators or focusing events—such as crises or disasters - draw the increased attention of policymakers. In the case of ethanol and the RFS, the policy window must have opened in the problem stream because all three streams converged more or less after the described environmental, agricultural economy and energy problems appeared and gained attention by policy makers. Another reason that speaks for the policy window of ethanol opening when the issues described in the problem stream appeared, is the fact that Nikolaos Zahariadis (1996), in his study *Selling British Rail: An Idea Whose Time Has Come?*, suggests that when windows originate in the problem stream, they are likely to find a

solution to a given problem, whereas windows originating in the political stream will search for a problem that fits an existing solution because adopting policies is more important for political actors than actually solving problems. In the case of ethanol and the RFS, it was clearly the former, because as the previous chapters revealed, the problems between 2000 and 2005 were increasingly recognized as intertwined and ethanol as well as the RFS were presented as an all encompassing solution for these various problems. However, the simple existence of problems, even those of crucial importance, and a policy window does not hold enough clout to find placement as a topic on the decision agenda.

c) Policy Entrepreneurs

Thus, a policy entrepreneur must present a problem when the political conditions are favorable for partnership with an available solution that can be achieved with little effort on the behalf of the decision makers. As advocates, who are agreeable to the idea of providing their assets to endorse a position in return for anticipated gain, policy entrepreneurs promote their worries in reference to specific issues to top positions on the agenda. It is through this process that they are generating a softening-up process in the policy stream in order to prepare both the public and the policy community for the solutions they intend to present. Thus, by trying to shape public policy according to their anticipated outcomes, both presentation of problem acknowledgment and proposed resolutions are key goals of policy entrepreneurs. According to Kingdon, policy entrepreneurs can come from many different fields of focus, such as politicians, lobbyists, academics and scientists, and even a private person can be a policy entrepreneur. When it comes to ethanol's escalated position on the political agenda, numerous policy entrepreneurs can be identified as originating from various areas throughout the political system, which corresponds to Kingdon's assertions, that it is practically impossible to assign a single entity the responsibility of an item's high agenda position. The subsequent list is constructed of the most perceptible actors who spoke at congressional hearings when the topic of ethanol was prevalent. Literature reviews have also been completed as auxiliary components to these congressional hearings:

- **Governmental Actors: Carol Browner**

Carol Browner, in her capacity as administrator of the Environmental Protection Agency (EPA), significantly endorsed the use of ethanol. From 2009 to 2011, she held the position of assistant to President Obama and director of the White House Office of Energy and Climate Change Policy, an appointment in direct relation to her immense knowledge of

issues connected to the environmental, energy, climate, and transport. Further, her track record of being a fervent supporter of the Renewable Oxygenate Rule (ROR) and her publicly voiced opinion on the topic led to appearances at multiple congressional hearings to endorse and speak on behalf of the positive results, which were predicted to be stimulated by the ROR. As well, as mentioned previously, in response to the presence of MTBE, Browner appointed the Blue Ribbon Panel on Oxygenates in Gasoline to stimulate proposals that would place equal value on air and water quality. Additionally, she placed focus on the EPA's dedication to ethanol and the RFG program and, in her position at the EPA, launched supervisory action in the form of the Toxic Substances Control Act (TSCA). Further, Browner was an avid supporter of the enactment of a Renewable Fuels Standard (RFS), as she postulated that such legislation would stimulate additional renewable and bio energy options.

- **Governmental Actors: Keith Collins**

Keith Collins, a highly influential agricultural policy expert and economist, held the position of Chief economist at the U.S. Department of Agriculture. Collins believed that Cellulosic ethanol production had the greatest potential to be the top renewable alternative for attaining a considerable decrease in foreign oil imports and that an effective commercialization would open the door for feedstocks other than corn to be used for ethanol. Particularly, Collins espoused the positive impacts the mandated ethanol blended with a RFS would have on the federal budget, farm income, and rural jobs. Further, Collins postulated the required data to show the capacity of the agricultural sectors to keep up with an intensified need for ethanol and expressed concern over impacts of the demand for ethanol on prices and resources; yet he also offered solutions based on technological advances and viability, and government assistance to control and limit any negative economic impact from an increased ethanol need.

- **Politicians: Senator Tom Daschle (D-SD),**

Democratic Senator Tom Daschle, from South Dakota, has been a top promoter of ethanol policy in Congress, endorsing it through highlighting the potential benefits to be experienced by farmers, small towns and the environment. He viewed ethanol as a solution with enormous benefits related to national aspirations of reducing dependency on foreign oil. He also saw ethanol as a way to secure a positive economic future for Corn Belt States and was a firm believer that current production facilities for grain-based biofuels

represented an important element in the ability to promote the next stage of innovative cellulosic and waste-derived biofuel technologies; thus, he supported the idea that such facilities needed government backing. He further made his presence known at congressional hearings and discussions in relation with pro ethanol arguments and was the first to articulate and formulate the Renewable Fuels Standard (RFS) of 2000 when he introduced the RFS on the floor of the senate.

- Politicians: Senator Richard Lugar (R-IN)

An assessment of congressional hearings and discussions since the 1980s presents former Republican Senator Richard Lugar, from Indiana, as an extremely discernible entrepreneur of pro ethanol policy. Lugar held the position of Chairman of the Agriculture, Nutrition and Forestry committee from 1995 to 2001 and in this position was an ardent promoter of employing initiatives aimed at the growth of farm profit, which included programs and biofuel research proposals directed at greater incentives for biodiesel and the production of ethanol from cellulosic biomass. Lugar has long been at the forefront of pro-ethanol policies, including a proposition to assure that all vehicles are "flex-fuel" with the ability to run on ethanol. Further, Lugar was the initial sponsor in 2000 of legislation to generate a RFS and in 2005 was a member of a bipartisan group of 19 senators that introduced the Fuels Security Act, a bill, which would have more than doubled the production and use of domestic renewable fuels, including ethanol. As evidence of his presence in the pro ethanol community, Indiana University-Purdue University Indianapolis established a Richard G. Lugar Center for Renewable Energy; a center focusing solely on renewable energy with the aspiration that subsequent work would help to grow markets for farmers in Indiana as well as Indiana ethanol plants.

- Politicians: Senator Tom Harkin (D-IA)

Tom Harkin, the Democratic Iowa Senator, who heads the Agriculture Committee, has consistently promoted ethanol and biofuels as a key component of energy independence from foreign sources, a source of environmental improvement, and a crucial economic stimulator for the U.S. rural economy. Further, he often highlighted the positive net energy value (NEV) results of ethanol. To support this stance, he requested that the USDA conduct a study to provide hard facts as proof to reinforce the RFS as part of the EPAct of 2002. The results from this study found that blending only 10 percent ethanol into gasoline would decrease the retail consumer price by seven cents a gallon, or five percent. In terms of

consumer savings, the RFS would result in \$5.6 billion annually. Additionally, in 2007, along with then U.S. Senator, Barack Obama, Harkin introduced a bill to update the RFS to require the production of 18 billion gallons of renewable fuels by 2016, involving 3 billion gallons of advanced biofuels, with the goal being to create a stable market for small, local, and farmer-owned ethanol producers. Further, both senators again came together to introduce legislation of a National Low Carbon Fuel Standard (NLCFS). The bill recognized the steady growth of the U.S. renewable fuels market, specifically corn-based ethanol, cellulosic ethanol and biodiesel as key factors in the battle to limit and altogether halt global warming. Although this legislation was not enacted, it is further evidence of Harkin's commitment to ethanol and the ideals of a RFS.

- Politicians: Senator Charles Grassley (R-IA)

U.S. Sen. Charles Grassley, a Republican from Iowa, the nation's top ethanol-producing state, has been a longtime champion of ethanol as well as the Renewable Fuels Standard in the 2005 national energy bill in Congress. He has continuously vowed to educate his congressional colleagues on the importance of a RFS and has further concentrated his energies on supporting the RFS². Grassley has sponsored legislation to have 25 percent of America's energy come from renewable sources by 2025, and has staunchly combated efforts to destabilize the expansion of ethanol production in the United States by a hasty revoking of the tariff on Brazilian ethanol. This show of support for both ethanol and the RFS is consistent with his political track record, as in the 1990s he put efforts into formulating the clean air mandate that paved the way for increased ethanol production and utilization, and he guided the movement to extend the ethanol program for the next 10 years. In his role as the Chairman of the Finance Committee, he created and expanded tax incentives for biodiesel and biomass energy sources.

- Politicians: Senator Chuck Hagel (R-NE)

Republican Senator, Chuck Hagel, from Nebraska, an early proponent of ethanol, pushed for legislation to establish an assertive growth design for ethanol and biodiesel production and use in the United States and thus backed the Renewable Fuels for Energy Security Act of 2001 and 2003. Hagel worked to develop an ethanol package that would not only expand the use of renewable fuels in America, but would provide other concrete advantages for the public. He was also a strong supporter of the EPA Act of 2003, as he believed it had the ability to gradually increase the nation's use of renewable fuel to 5 billion gallons by year 2012. In 2005, he furthered this goal by joining a bipartisan group of senators in introducing

the Fuels Security Act of 2005 - legislation that would have dramatically expanded the use of ethanol and biodiesel. The bill included a Renewable Fuel Standard (RFS), which would gradually increase the nation's use of renewable fuels from 4 billion gallons in 2006 to 8 billion gallons in 2010, which is an increase over previous RFS measures. He believed such legislation would assist endeavors to modernize the nation's fuel structure, and place focus and solutions on current and future environmental, energy and security issues.

- Lobbyists: Bob Dinneen

Bob Dinneen is president and CEO of the Renewable Fuels Association (RFA). As the ethanol industry's leading lobbyist before Congress and the Administration, Dinneen has been influential in advancing policies related to ethanol expansion. His expertise in the field has led him to be a top ethanol proponent testifying before federal agencies and in congressional hearings, where he was able to promote the implementation of a RFS in the proposed EAct of 2005. Dinneen also played a major part in pushing through the idea of ethanol in state policy by presenting current crucial problems side-by-side with a proposed, all encompassing solution: ethanol. Dinneen additionally argued the point effectively that corn growers and producers were certainly capable of the output of corn necessary under a RFS and that this output would result in Clean Air Act requirements being assured. Further, by focusing on specific ramifications of increased ethanol use, such as the lowering of the need for foreign oil, enhanced energy security, a national energy supply, a lowering of air pollution, a rise in farm income and a lessening of the costs of farm programs, Dinneen, as the voice of the RFA, together with the NCGA, was a highly influential and assertive actor in promoting and further advancing a RFS.

- Lobbyists: Leon Corzine

Leon Corzine is an influential lobbyist and President of the National Corn Growers Association (NCGA), who tirelessly supported the idea of ethanol in Congress. He was very specific on the positive impacts the mandated ethanol blended with a RFS would have on federal budget and farm income and in Ethanol related hearings and subsequent debates related to the EAct of 2005, Corzine utilized various environmental and economic problems as points of reasoning in that ethanol use has the advantage of providing a solution. In several statements asserted in Congress, Corzine emphasized the positive net energy balance of ethanol and the positive impact an expansion of ethanol would have on farm income and federal spending on farm programs. Further, Corzine also devoted himself

to promoting legislative actions that called for a phase out of MTBE, such as The Bond-Durbin bill, as it would have further opened the door to an increased use of ethanol. Corzine was very skilled in connecting problems – for example, green house gases - faced by Congress with renewable fuels, such as ethanol.

Thus, even though there is little doubt that in terms of the extensive case of ethanol and the RFS, the identification of policy entrepreneurs could be expanded, the actors described above were highly visible in both the problem as well as the policy stream. In the problem stream, they have successfully drawn the policy makers attention to problems they could tie to ethanol and the RFS, and in the policy stream they effectively prepared both the public as well as the policy community for their chosen well-rounded solution, that is, ethanol. It is also apparent from the above that - with a few exceptions being representatives of interest groups and governmental agencies - mostly politicians from the major Corn Belt States had a crucial role in coupling the problems, solutions and political climate when the window of opportunity was present.

Ethanol lobbyists and politicians from corn growing states were very clear in the positive ramifications that would result from increased ethanol production and distribution as stipulated by a RFS. In looking at the effects that such ethanol legislation would have on the states represented by these lobbyists and politicians, it is clear why they fought so hard for ethanol. On the other hand, it is not so clear why governmental agencies, such as the USDA and EPA, would take a side, although without question, their backing of Ethanol was highly sought out by ethanol lobbyists and politicians, as such governmental entities are respected and considered highly influential. One reason for the involvement of EPA and USDA representatives as policy entrepreneurs could be due the regulatory nature of their organizations and the resulting implied involvement they would have with any new biofuel legislation.

Now that the problems that captured the attention of people in and around the government have been shown, along with an explanation of how the ideas, solutions and policy proposals that were generated around these issues, the political events and conditions that took place at the time the RFS was debated in Congress, and how all of these were successfully coupled by policy entrepreneurs once a policy window opened, the following chapter will summarize the analyses the research presented in chapter 5 in order to answer the first part of the original research question: How did the EPA Act of 2005 (109th Congress – P.L. 58, 109th

Congress - H.R.6) - as specifically related to ethanol within the RFS - manage to gain placement on the political agenda and finally reach agreement?

5.6 Conclusions – EPO Act of 2005 and the RFS

The separate examination of the problem, policy, and politics streams provided a useful framework for reconstructing the conditions that were interpreted as problems, the ideas, proposals, alternatives and solutions that were discussed and tied to these problems, and the political conditions that prevailed at the time of debating ethanol mandates.

In looking within the problem stream, it becomes clear that the concurrent emergence and prominence of several problems - such as declining air quality in dense urban areas, the detection of MTBE in ground waters and reservoirs, and the increased awareness and debate about global warming as well as several agricultural problems, like the declining farm income and the growing costs of federal farm-subsidy programs, together with energy security problems, such as increasing fuel demand and volatility of the oil market, and lastly, energy shortages, specifically at the beginning of the new millennium - created a favorable setting for the idea of a Renewable Fuel Standard. These individual problems had previously only been discussed as separate occurrences without connection, but once these problems were interconnected and seen as smaller components of one big problem, the door for ethanol to sweep in and provide a solution was wide open.

Further, upon closer look at the policy stream, a complete absence of a general stance amongst the scientific community in connection to ethanol and its ability to provide solutions to critical problems is clear; however, such organizations, like the USDA, the EPA and the DOE, supported the idea of ethanol and a RFS. Due to the multitude of resources available to these organizations and a respected authority, which in connection to their prominent profile delivered a large amount of credence supporting the stances of pro-ethanol interest groups and entrepreneurs, the lack of scientific agreement was seemingly overlooked. Additionally, interest and lobbyist groups had highly weighted influence within the policy stream. Such groups as the NCGA and the RFA played a key role in promoting ethanol through connecting current problems with the sweeping solution of ethanol and these groups were backed by additional high profile interest groups. As well, due to ethanol opposition groups – API and NPRA - experiencing negative attention and a break-up of organization,

specifically, as a result of lawsuits related to cleanup of MTBE in ground water, a point of negotiation between opposing groups came into existence. Essentially, various petro-companies agreed to back ethanol interests groups in return for their support of the liability waiver in the EPOA of 2005. Being that MTBE was the only threatening opponent of ethanol, having it essentially out of action greatly benefited ethanol.

Lastly, it is clear that it was exactly pro ethanol politicians and interest groups that aided in facilitating ethanol as a solution and it would be exactly these individuals and entities, who would benefit from such pro ethanol legislation. Congress and the public were educated on the topic of the suitability of ethanol in terms of technological feasibility as well environmental friendliness by these politicians and groups. In doing so, those with an agenda sorted through the information to be chosen for presentation and, as such, the information spread through the political and public sphere was skewed in a specific direction. On the one hand, for those politicians not looking to be affected by ethanol legislation either way, there was a lack of motivation to conduct research, which would dispel any points being pushed by pro ethanol politicians and groups, thus, opposition was not as organized or ambitious in working against ethanol legislation.

The third stream mentioned, the political stream, demonstrates that the 2000 and 2004 election campaigns similarly gained momentum for ethanol in that ethanol was made a dominant element of key campaign promises, especially in Corn Belt States. The candidates were able to both intensify the national prominence of the topic of ethanol and additionally convey distinct messages to pro ethanol constituents that their propositions would be considered and regarded as important to either elected administration. Of course, the ability of both candidates to potentially benefit from a pro ethanol stance in terms of votes was only because conditions within the problem stream facilitated a positive public mindset in connection with government backing for alternative fuels. Thus, the problem stream and the political stream were highly interconnected and influential on one another.

Consequently, the above outlined three streams brewed a perfect political storm for pushing a RFS on the political agenda. However, even though the analysis revealed that all three streams were in place, it concludes that the problem stream influenced ethanol's placement on the agenda more than the others. It was the appearance of new problems and its increasingly intertwined recognition that resulted in the emergence of a policy window, where

policy entrepreneurs were given the chance to push their respective agendas and begin to couple all the streams together, garnering the attention of those in charge of legislation formation under the umbrella of ethanol as the chosen and ideal solution in a time of ripe political climate.

Finally, it may be stated that with the described reasons and factors that placed ethanol in a very favored position in U.S. legislation, with the RFS enacted within the EPAct of 2005, the ethanol industry benefited “from a triple crown of government intervention: its use is mandated by law, it is protected by tariffs, and companies are paid by the federal government to use it” (Feinstein 2011d). However, as history shows, the favorable position of ethanol in Congress proved to not have long-lasting protection and by the beginning of 2012, the ethanol industry had to look at a life without the VEETC and the Import Tariff. Which factors and circumstances contributed to the sudden change of ethanol and its subsidy, will be assessed in the next chapter.

6. Policymaking Process of the Ethanol Subsidy and Tariff Repeal Act

The function of this chapter is to analyze and describe the forces at work in the legislative decision making process, which led to the passing of the Ethanol Subsidy and Tariff Repeal Act in the Senate. For analyzing the policymaking process of S.871 and S.Amdt.476, the same structure or approach will be used as in chapter 5. Therefore, as a starting point for the analysis, a summary of the policymaking decision event as well as an overview of legislation presentation, committee tasks, hearings, floor deliberation, consideration of amendments and conference reports leading to the enactment will be given. Subsequently, this chapter will, according to the conceptual framework of chapter 2.1.1, analyze the legislative action as related to the three streams of (1) problem identification, (2) policy formulation, and (3) political relations. Furthermore, the scope of the final section of this chapter is to provide an explanation of how and if these contextual forces or streams have been coupled within a window of opportunity and what role specific policy participants had in such a coupling.

6.1 Ethanol Subsidy and Tariff Repeal Act

6.1.1 Background Information

As chapters 4 and 5 have uncovered, over the past four decades, the federal government has provided vast and various support, such as loans, tax exemptions and mandates, for the biofuel industry. Yet, as already partially pointed out in chapter 3.1, among this mass of programs directed at a wide variety of biofuels, three principle ethanol incentives, that boosted ethanol and which are important for this chapter, clearly rise above the rest: (1) the Ethanol Import Tariff, (2) the volumetric ethanol excise tax credit (VEETC) and (3) the Renewable Fuel Standard (RFS). It is these three major ethanol policies, which mostly impacted and boosted ethanol production, starting in the new millennium. Even though the RFS 2 of 2007 and the 2008 Farm Bill had already echoed Congress' "transfer" of attention away from corn ethanol, passing new programs to back the research and development of "innovative" fuels, all three centerpieces of federal ethanol policies - the RFS, the Ethanol

Import Tariff as well as the VEETC - remained steadfastly intact until 2011. This changed on Friday, June 16th 2011, when the United States Senate voted by a 73-27 majority in favor of passing the Ethanol Subsidy and Tariff Repeal Act, a bill to repeal the VEETC, and with it the Ethanol Import Tariff. The Senate vote on S.Amdt.476 – which was identical to the Ethanol Subsidy and Tariff Repeal Act (U.S. 112th Congress – S.871) –can be viewed as the ethanol lobby's first defeat to corporate welfare benefits in over three centuries. This view is taken simply because it made clear that the Senate wanted to have the income and excise tax credits as well as the import tariff on ethanol, comprised by the VEETC, eliminated. With no bill passed in 2011 that would have extended the VEETC beyond the 31st of December 2011 and a Senate vote in place that favored the immediate elimination of the VEETC by the 1st of July 2011, it became highly clear, that by mid 2011, the ethanol excise tax credit and the import tariff on ethanol, very likely, would be history. By the end of 2011, a 30-year history of ethanol subsidy quietly expired and it seems that not many policymakers made attempts to extend. However, in order to fully understand the historical vote on the Ethanol Subsidy and Tariff Repeal Act, it is important to understand the historical development of the policies, which it repealed – the VEETC and with it, the Ethanol Import Tariff - and this will be achieved in the next paragraph.

The Carter and the incoming Reagan administration enacted the Ethanol Import Tariff in 1980 during the second oil crisis in order to promote domestic ethanol production by a 54 cents per gallon tariff on imported ethanol. The VEETC was signed by President Bush as part of Public Law 108-357 (U.S. 108th Congress – P.L.357, U.S. 108th Congress – H.R.4520), the American Jobs Creation Act of 2004, and replaced previous federal ethanol excise tax credits as well as provided blenders with a federal tax refund of 51 cents per gallon of ethanol on each gallon of ethanol blended with gasoline. It was scheduled to expire on December 31st 2010 and was reduced to 45 cents per gallon with Public Law 110-246 (U.S. 110th Congress – P.L.246, U.S. 110th Congress – H.R.4520), the 2008 Farm Bill (Cato 2010: 72). Due to the fact that the VEETC also included a 54 cents a gallon tariff on imports, it also extended the Ethanol Import Tariff, which had been in place since 1980, until the end of 2010. Since the VEETC and the Import Tariff were mainstays of the ethanol industry's three-pronged policy that contributed to the meteoric growth of corn-based ethanol production, the ethanol industry, of course, by early 2010, started to lobby hard for an extension of the existing ethanol import tariffs and blender tax credits before their impending expiration at the end of 2010. On March 25th 2010, Congressman Earl Pomeroy (D-ND) introduced House Bill 4940 (U.S. 111th Congress – H.R.4940), the Renewable Fuels

Reinvestment Act in the House of Representatives, and on April 20th 2010, Senator Charles Grassley (R-IA) introduced Senate Bill 3231 (U.S. 111th Congress – S.3231), the GREEN Jobs Act of 2010. Both bills were an attempt to extend the 45 cents per gallon VEETC and the 54 cents per gallon Import Tariff for five more years (Babcock et al. 2010a: 1). Even though the two bills died in Congress, the effort of the ethanol industry was not left unrewarded. The 45 cents per gallon VEETC and the Import Tariff were extended by President Obama on December 17th with the signing of House Bill 4853 (U.S. 111th Congress – H.R.4853) - the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 - into Public Law 111-321 (U.S. 111th Congress – P.L.321, U.S. 111th Congress – H.R.4853), even though there were two opposing bills, with the intention of modifying the VEETC, simultaneously introduced into Congress in 2010. These bills included House Bill 5757 (U.S. 111th Congress – H.R.5757), the Renewable Fuels for America's Future Act of 2010, which was introduced into Congress by chairman of the Agriculture Committee's Department Operations and Congressman, Jeff Fortenberry (R-NE). Further, a draft bill was introduced by the Committee on Ways and Means (CWM), which is "the chief tax-writing committee in the House of Representatives" (CWM n.d.). The former would have "reshape[d] the existing policy to make the blenders' tax credit available only for ethanol produced beyond mandated levels" (Fortenberry 2010) and the latter would have cut the VEETC from 45 cents to 36 cents per gallon and extended the VEETC for one year, but was successfully defeated by a vote in the Senate on December 4th 2010. However, the VEETC was prolonged at the end of 2010 for one more year, under the clear agreement that there would be intense discussion on biofuels. But, as we know now, this debate would not be to the benefit of the ethanol industry because only a few months later, Congress' attitude towards ethanol incentives, such as the VEETC and the Import Tariff, would take an entirely different direction. In order to determine which factors and circumstances contributed to the sudden change of ethanol and its subsidy from a comprehensive answer to energy security policy and a way to combat climate change, to an issue with a social, economic, and environmental impact on the country, the following chapters will analyze the policymaking process of the Ethanol Subsidy and Tariff Repeal Act through the MS model lens. To do so, a given summation of the legislative decision events that led to the enactment of the Ethanol Subsidy and Tariff Repeal Act, will first be given.

6.1.2 Summary of Legislative Decision Events

Additional efforts to extend the VEETC throughout 2011 occurred soon after President Obama signed the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (U.S. 111th Congress – H.R.4853) - into Public Law 111-321 (U.S. 111th Congress – P.L.321, U.S. 111th Congress – H.R.4853). On January 24th 2011, Congressman Jeff Fortenberry introduced House Bill 404 (U.S. 112th Congress – H.R.404), the Renewable Fuels for America's Future Act of 2011, which was very similar to his July 2010 introduced House Bill (U.S. 111th Congress – H.R.5757). However, even though Congressman Fortenberry's bill would have "require[d] a reduction in the income and excise tax credits for alcohol used for fuel by the amount of alcohol used to meet the taxpayer's renewable fuel obligation under the Clean Air Act, [it also would have] extend[ed] such credits and payments for alcohol fuel mixtures through 2016" (U.S. 112th Congress – H.R.404). An oppositional bill followed shortly. Only one day later, Congressman Jeff Flake (R-AZ) introduced House H.R. 426 (U.S. 112th Congress – H.R.426), the RIPE Act of 2011. This bill would have "amend[ed] the Clean Air Act to repeal the renewable fuel standard [and would have] amend[ed] the Internal Revenue Code to terminate the excise tax credit for alcohol fuel mixtures and the income tax credit for alcohol used as fuel" (U.S. 112th Congress – H.R.426). Being that both bills did not pass Congress, a tug of war about whether the VEETC and other ethanol incentives should be extended or removed, intensified. Only three months after successfully pushing through the one year extension of the VEETC with Public Law 111-321 (U.S. 111th Congress – P.L.321, U.S. 111th Congress – H.R.4853), Iowa Congressman Bruce Braley (D-IA) introduced House Bill 851 (U.S. 112th Congress – H.R.851), the Clean Energy Jobs Act of 2011. Introduced on March 1st 2011, the bill would have "amend[ed] [...]the income and excise tax credits for biodiesel and renewable diesel used as fuel and for alcohol used as fuel [and] the cellulosic biofuel producer tax credit, and the reduced credit for ethanol blenders [...] to extend through 2016" (U.S. 112th Congress – H.R.851). An opposing bill, Senate Bill 520 (U.S. 112th Congress – S.520), came shortly after and was introduced by Senator Tom Coburn (R-OK). The Volumetric Ethanol Excise Tax Credit Repeal Act was introduced in Senate on March 9th 2011 and would have "amend[ed] the Internal Revenue Code to provide for the immediate repeal (the current expiration date was December 31st, 2011) of the income and excise tax credits for alcohol fuel mixtures (ethanol)" (U.S. 112th Congress – S.520). The related House Bill 1075 (U.S. 112th Congress – H.R.1075), the Volumetric Ethanol Excise Tax Credit Repeal Act, was introduced in the House of Representatives only five days later by Representative Steve Womack (R-AR). A bill that took a different direction,

but also paved the road for the Ethanol Subsidy and Tariff Repeal Act was Senate Bill 530 (U.S. 112th Congress – S.530), a bill to modify certain subsidies for ethanol production, among other purposes (U.S. 112th Congress – S.530). This bill was introduced by Senator Dianne Feinstein (D-CA) on the same date as Senate Bill 520, but unlike Senator Coburn's Senate Bill 520 and House Representative Womack's House Bill 1075, Feinstein's Senate Bill 530 would have eliminated the ethanol tax credit by June 30th only for corn-based ethanol. According to what was outlined in the bill, after June 30th, the tax credit would have only been applicable to ethanol, which falls in the category of an advanced biofuel as defined by section 211(o) of the CAA (Gantz 2011). An additional bill, House Bill 1188 (U.S. 112th Congress – H.R.1188), which basically amended the same as Senate Bill 520 and House Bill 1075, namely, The Immediate Repeal of the Ethanol Tax Credit, was introduced on March 17th 2011 by House Representative Leonard Lance (R-NJ). The above-described legislative events make it clear that even though at the beginning of 2011 a few bills were introduced in Congress to extend the ethanol tax credit and the import tariff on ethanol throughout 2016, a far greater effort was in effect in Congress to repeal these incentives. By mid March 2011, three bills (S.520, H.R.1075, H.R.1188) to repeal ethanol immediately and one bill that would have eliminated the ethanol tax credit by June 30th (S.530) were already introduced in Congress. However, none of these bills made it through the Committee and Floor Action and therefore no vote took place. Consequently, the efforts towards an extension or elimination of the VEETC poised for the next rounds. On May 3rd 2011, John Coburn (R-OK), together with eleven additional co-sponsors, amongst them also Senator Dianne Feinstein (D-CA), introduced Senate Bill 871 (U.S. 112th Congress – S.871), namely the Ethanol Subsidy and Tariff Repeal Act. As well as Diane Feinstein's House Bill 530, the Ethanol Subsidy and Tariff Repeal Act called for "the termination date of the income and excise tax credits for alcohol fuel mixtures (ethanol) from December 31st 2011, to June 30th 2011" (U.S. 112th Congress – S.871), but amended "the Harmonized Tariff Schedule of the United States to allow, on or after June 30th 2011, duty-free treatment for ethyl alcohol or any mixture containing ethyl alcohol (ethanol)" (U.S. 112th Congress – S.871) and did not comprise an exception for advanced biofuel as defined by section 211(o) of the CAA. It was further referred to the Committee in Finance, but never made it to floor action. Therefore, Senator Coburn (R-OK) introduced into the Senate an identical bill, Senate Bill 1057 (U.S. 112th Congress – S.1057), also titled the Ethanol Subsidy and Tariff Repeal Act, on May 24th 2011. From the above, it clearly appears that especially Senator Coburn (R-OK) and Senator Feinstein (D-CA) spared no effort in attempts to remove the ethanol tax credit and the import tariff in 2011. However,

Senate Bill 1057 also did not make it further than being placed on the Senate Legislative calendar. Nevertheless, because Senator Coburn (R-OK) had been a big opponent of ethanol for quite some time, therefore especially making the VEETC a thorn in his side - which is also clear by statements in a press release that was announced on June 10th 2011, namely that “the days of placing spending programs in the tax code and giving them holy status are over” (Coburn 2011) - it was no surprise that Senator Coburn (R-OK) made an additional attempt to repeal the VEETC shortly after introducing Senate Bill 1057. On June 9th 2011, Senator Coburn proposed the Ethanol Subsidy and Tariff Repeal Act as Amendment 436 (112th Congress –S.Amdt.436) to the Senate Bill 782, namely the Economic Revitalization Act of 2011 (112th Congress –S.782) and surprisingly was able to obtain Senate Vote 89 on S.Amdt.436 only five days after its introduction into the Senate. This is also surprising because, customarily, any bill involved with taxes starts in the House of Representatives. However, even though the vote on S.Amdt.436 would have been a tax change and should have started in the House of Representatives, Senator Coburn (R-OK) was able to get the Senate to vote on S.Amdt.36 on June 14th 2011. Even though the vote decreased by a pretty significant margin of 40-59, because the Democratic leadership, on principal alone, decided to vote against it, it was not to last. The close to a straight party-line vote was diluted by a vote on an identical amendment (112th Congress – S.Amdt.476) to the Economic Revitalization Act of 2011 (112th Congress –S.782), which was proposed by Senator Dianne Feinstein (D-CA) on June 15th 2011. Surprisingly, only two days later, the same amendment, the Ethanol Subsidy and Tariff Repeal Act, was voted on 73-27 in favor of eradicating the VEETC. For ethanol opponents, the vote on S.Amdt.476 was historical because it clearly showed, for the first time in ethanol history, that there were enough votes in the Senate to eliminate the VEETC, which was often referred to by ethanol opponents as a program that the people in Washington do not need to waste money on. However, even though the Ethanol Subsidy and Tariff Repeal Act never became law because the House of Representatives never passed the Economic Revitalization Act of 2011, to which it was amended to, such a law definitely sent a strong message from Congress that an extension of the VEETC is very unlikely to happen and that Congress was aiming to let it expire by the end of 2011. In order to find out which factors contributed to the push of the immediate elimination of the ethanol tax credit and the import tariff on ethanol on the political agenda as well as contributed to the final agreement in the Senate by mid of July 2011, the next chapters will examine problems, solutions and policy proposals that were created around these issues, and political conditions or interests that were influential.

6.2 Problem Stream

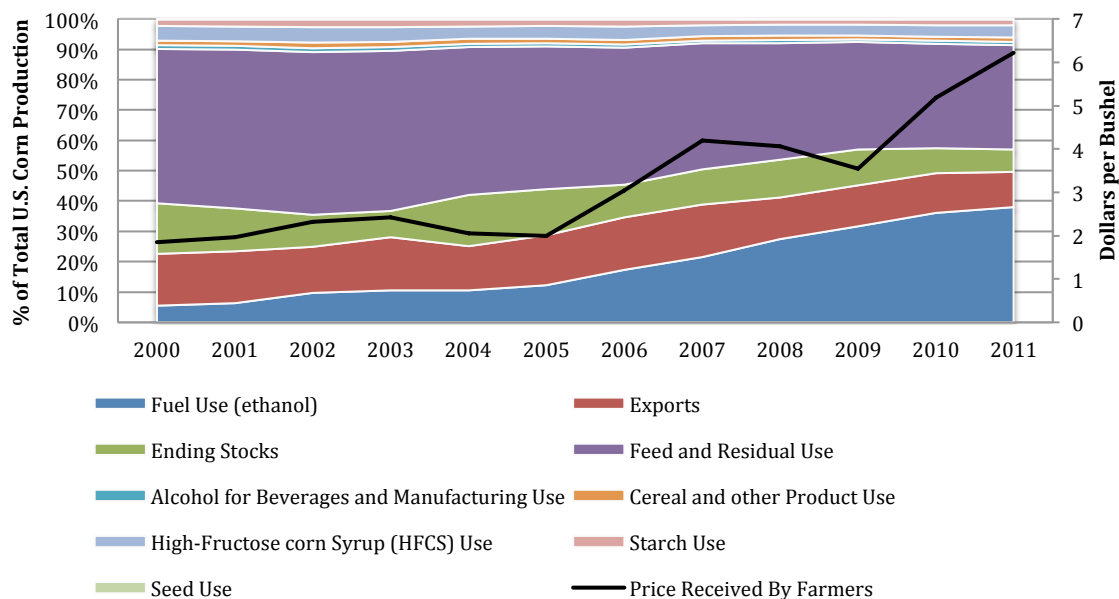
As already described in chapter 5.2, the Problem Stream is comprised of social conditions as recognized by policymakers to be problematic issues, and it is exactly these conditions that will be classified and examined in this chapter. To achieve appropriate analysis of the policymaking process of the Ethanol Subsidy and Tariff Repeal Act, the relevant hearings regarding the various bills that dealt with the elimination or extension of the VEETC and the import tariff on ethanol, which includes debates held between the 110th and 112th Congress, will be analyzed. Additionally, secondary literature will also be utilized to add further understanding to the challenging conditions that policy makers were drawing attention to.

6.2.1 Macro Economic Conditions & Problems identified

a) Rising Corn and Food Prices

Analysis of the Congressional debates related to Ethanol, which were held between the 110th and 112th Congress, clearly shows that the most debated problems linked to corn ethanol were rising corn and food prices in and also outside of the United States. This is because during the same time period that ethanol production was gaining momentum in the United States, food prices in the U.S. and around the world were also experiencing an upwards flux. Commodity food prices swelled considerably, specifically between late 2006 and mid-2008, and in reaching high levels later on (i.e., during 2010, early 2011, and the third quarter of 2012), worries about a repeat of the 2006 to 2008 food crisis were present (Rezitis and Sassi 2013). In concrete figures, whereas during the debates of the RFS between 2000 and 2005 the price of a bushel of corn in the U.S. was between \$1.85 and \$2.42, it rose steadily up to \$6.22 in 2011 (USDA 2013).

Figure 3: U.S. Corn Use in Relation to Production, and Price History



Source: own illustration, data retrieved from USDA (2013) and FAO (2013)

The search for and debate on what was continuously driving corn and food prices in the U.S. and worldwide swiftly materialized. Since the cause explanation of the high agricultural commodity prices concerned numerous key issues, such as (1) persistent demand shocks, (2) a reduction in elasticity, or price responsiveness, of demand and supply, (3) weather and stocks (4) foreign policy - particularly worth mentioning here is China - and (5) macroeconomic factors, the debate about food vs. biofuels was very controversial (Abbott et al. 2011). However, as figure 2 might lead one to expect, there was and is extensive agreement that biofuel development worldwide, and particularly in the U.S, was a main contributor to increases in agricultural commodity prices through the direct funneling of food and feed crops to fuel uses and through the competition for land for growing energy-related crops. Yet, there was and still is less consensus on what share of food price increases should be credited to biofuels development as opposed to the other causative factors mentioned above (Wise 2012). Without going into detail - as the policy stream will provide more information on which researchers, their results and solutions in regard to the problem of rising corn and food prices received attention and recognition in Congress - it is more important for this section of analysis to note that the examination of the congressional Records revealed a rising concern ascribed to rising agricultural commodity prices between the 100th and 112th Congress (2007-2012). Whereas a search of the 109th Congress (2005-2006) did not render a single concern about rising agricultural commodity and food prices, in

2008 the House as well the Senate was showered with concerns related to rising food prices, and associated causes and consequences (McGiven, U.S 110th Congress 2008: 6237; Conyers, U.S 110th Congress 2008: 1050; Kucinich, U.S 110th Congress 2008: 759; Inhofe, U.S 110th Congress 2008: 3469; Jackson-Lee, U.S 110th Congress 2008: 7866, Clarke, U.S 110th Congress 2008: 4311). To give an example, among the large number of statements that were issued on increasing food prices is a particular quote from House Representative Marcy Kaptur that made the following clear:

Higher food prices and higher commodity prices are destroying prosperity for millions and millions of people here at home and abroad. Whether there is a hungry person in Toledo, Ohio or in Haiti, the rising costs of basic food are really placing the world's marginalized and poor in even a tighter squeeze (Kaptur, U.S 110th Congress 2008: 2325-2326).

Whereas the statements regarding higher food prices and associated consequences within the 110th Congress seemed practically endless, an analysis of Congressional Records of the 111th Congress resulted in a significantly low number of statements focused on the skyrocketing price of agricultural commodities and food. The impression is made that the rising price of agricultural commodities and food was so often issued in 2008, that Congress was seemingly supersaturated with this topic by the time of the 111th Congress. However, this can also be explained by the fact that the food price index was decreasing sharply from 2008 to 2009 and was not increasing drastically from 2009 to 2010 (see FAO 2013). The few speeches that mentioned the problematic situation of the “price of food [...] skyrocketing” (Crapo, U.S 111th Congress 2009a: 2468) were mainly addressed in the discussion of the high energy prizes and the general rise of living costs in rural areas (Cox, U.S 111th Congress 2009: 2138). This changed again in 2011. Although the extensive number of speeches that addressed the problem of skyrocketing corn and food prices in the 112th Congress was significantly lower than in the 110th Congress (particularly 2008), it can be recognized that at the same time as the S.871, S.1057, S.Amdt.436 and S.Amdt.476, the Ethanol Subsidy and Tariff Repeal Act, were being introduced and processed in Congress, speeches by policymakers pointing out rising food and declining food security sprouted up in large numbers. For example, House Representative Jim McGovern pointed out the following on March 1st 2011:

World Bank President Robert Zoellick announced that the Bank's food price index shows food prices are now 29 percent higher than they were a year ago [and that] food prices are soaring to record levels, threatening many developing countries with mass hunger and political instability (McGovern, U.S 112th Congress 2011: 1396-1397).

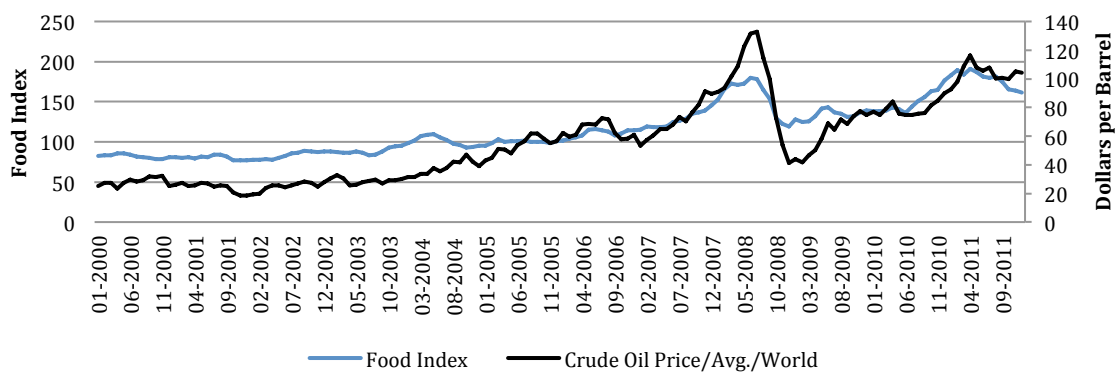
Similar concerns about the rising price of especially corn and food prices in general between March and June 2011 were brought up in Congress by House Representative Steve Pearce (R-NM) (Pearce, U.S 112th Congress 2011: 2321), Senator Tom Coburn (R-OK) (Coburn, U.S 112th Congress 2011a: 3748), House Representative Rosa L. DeLauro (D-CT) (DeLauro, U.S 112th Congress 2011: 4135), Senator Dianne Feinstein (D-CA) (Feinstein, U.S 112th Congress 2011a: 3743), Senator Chris Coons (D-DE) (Coons, U.S 112th Congress 2011a: 3879) and by various other policymakers. Nevertheless, the appraisal of the research material not only brings to light that rising corn and food prices were specifically at the center of congressional debates in 2008 and also firmly in 2011, it also clearly showed that research and media articles regarding this issue increased sharply in 2008 and to some extent in 2011. However, because the aim of this research is not a quantitative analysis of the debate over rising corn and food prices, a study that investigated the debates in the media over ethanol policy from September 2005 to September 2011 using quantitative frame analysis will be cited. Consistent with the research presented in this thesis, this study found that the “food prices frame tended to increase as food prices rose across the whole 2005 to 2011 time period, but this affect was stronger before 2008 than after” (Weiner 2012: 52). It can thus be concluded that the rising price of corn particularly and in generally the rising food prices were an integral part of congressional debates as well as being present in the U.S. media, most evidently since the 2008 spike in food prices. It can also generally be said that between 2009 and 2011, debates in Congress as well as in the U.S. media increased along with rising corn and food prices. While 2008 saw the greatest increase in debates in Congress and media, 2011 - although milder - also saw a growth in discussions related to spiking corn and food prices. This is of particular importance, because as will be shown in chapter 6.5, the problem of escalating corn and food prices was often associated with expanding ethanol production and was repeatedly used by ethanol opponents to argue against the extension of existing ethanol subsidies.

b) Rising Energy Prices: Oil and Gasoline

Another problem that was often linked to corn ethanol and often used as argumentation in debates regarding ethanol, especially by ethanol proponents, was rising energy prices, in particular, crude oil and the price of gasoline. As will be shown in chapter 6.5a, policymakers that argued for the extension of the VEETC often tried to attribute the rising energy, and in particular, climbing oil and gasoline price, as the responsible factor for high corn and food prices. This is because, nowadays, industrialized agriculture in its efforts to increase

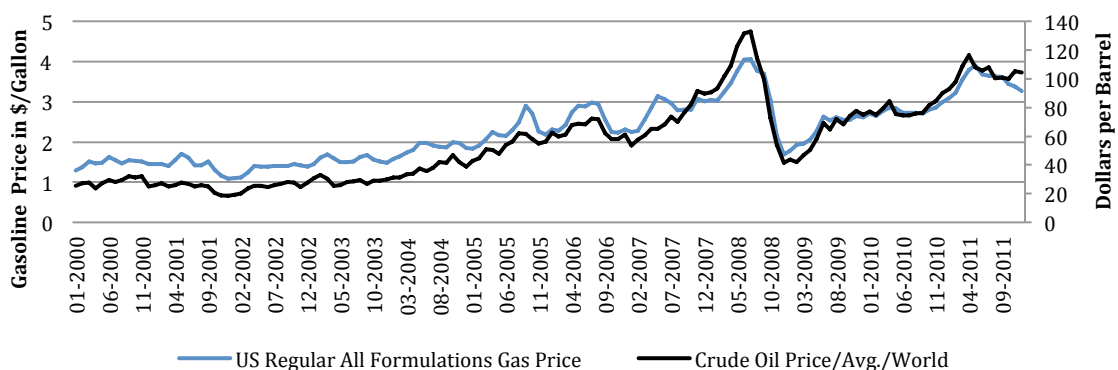
agricultural output to feed an increasing food demand (caused by population growth and changing patterns of food consumption) relies on oil for more and more critical tasks and food processing has become increasingly energy-intensive. Consequently, energy costs, and in particular the cost of crude oil and subsequently the price of gasoline, account for a significant share of corn and also food production costs and thus an oil price increase puts pressure on all facets of commercial food systems. Nevertheless, it is important to note that even though the price of crude oil and gasoline are strongly interlinked, they do not go hand in hand because the production process comprises a number of other costs that do not rise equitably as crude oil prices escalate. However, to come back to rising energy prices, whereas the crude oil price in July 2005, when signing the EPO Act 2005 into law, was \$56, it peaked at \$133 in July 2008.

Figure 4: Annual Average (nominal), Worldwide, Crude Oil Price , and Food Price Index



Source: own illustration, data retrieved from The World Bank (2013) and IMF (2013)

Figure 5: Annual Average (nominal), Worldwide, Crude Oil Price , and U.S. Regular All Formulations Gas Price



Source: own illustration, data retrieved from The World Bank (2013) and EIA (2013)

The steady increase of the crude oil and gasoline price, especially the skyrocketing prices beginning in 2007, also drew a lot of attention from politicians, as the evaluation of the congressional Records reveals. An incredibly large number of hearings and statements, that focused the problem of high energy prices, can be found between the 109th and 110th Congress, whereas the period between 2007 and 2008, which also corresponds to the debates over energy in the run-up to the Independence and Security Act of 2007 (110th Congress – P.L.140, 110th Congress – P.L.140, 109th Congress – H.R.6) and the Farm Bill of 2008 (U.S. 110th Congress – P.L.246, U.S. 110th Congress – H.R.4520), showed an extensive numbers of records in which policymakers defined high crude oil price as a serious problem. Statements similar to Senator Cantwell's can be found for at least every single month during this time:

Many of my colleagues saw that yesterday oil futures hit \$140 a barrel; I think today it is up to \$141 a barrel. The stock market, I think, is responding to the anxieties that oil costs are causing to our economy and the future prospects of some people speculating it might even be going up to \$150 or \$200 a barrel. This is a problem for us and a problem that this body needs to address and needs to address quickly (Cantwell, U.S 110th Congress 2008: 6313).

The investigation of the 111th Congress produced an entirely different picture, which is primarily attributable to the huge drop in the price of oil in late 2008. Although statements addressing the cost of oil can be found, these statements did not accurately describe the current oil price as a problematic situation; instead, most of the given statements regarding the price of oil stated that the price of gasoline was still high, even though the crude oil price dropped dramatically in late 2008 as well as the fact that “last summer[s] run up of the oil and gas prices, wasn't the result of the fundamental concepts of supply and demand” (Nelson, U.S 111th Congress 2009: 6758). This was instead because “the price of crude oil [...] tumbled from its height of almost \$140 a barrel, bottoming to somewhere near the low thirties without the new drilling of a single well” (Massa, U.S 111th Congress 2009: 5872). Therefore, as the investigation of the congressional Records of the 111th Congress uncovers, most of the debates about oil in the period between 2009 and 2010 dealt with “how is it that demand for oil can drop, supply can rise, and yet costs can increase?” (Perriello, U.S 111th Congress 2009: 6978).

The records of the 112th Congress paint a quite similar picture as the 111th Congress, but with the difference that there were also many statements found that blamed oil companies for the again rising oil price as well as for gauging at the pumps. Thus, in 2011, the question was all about why oil and gasoline prices were rising up, again, and who was making profit from

these upsurges. Whilst many statements made clear that there is a “powerful and growing consensus that speculation is a major cause of the rising cost of gasoline“ and oil (Blumental, U.S 112th Congress 2012: 1773), a significant proportion of congressional speeches pointed towards the oil companies, which recorded high profits:

In 2008, rising oil prices tripwired the Great Recession we are currently enduring. And we know recent price hikes threaten our recovery just as our Nation and our people are struggling to get back on their feet. Look at the profits that the major oil companies are raking in from gas prices at over \$4 a gallon. Just in the last quarter, Exxon raked in \$10.7 billion, BP brought in \$7.2 billion, Chevron earned over \$6 billion, and the list goes on and on--in one quarter. One quarter. These huge profits at the expense of our people and nation (Kaptur, U.S 112th Congress 2011: 2940).

Not surprisingly, with oil companies and their all time high profit records being in Congressional crossfire, policymakers that started to question governmental support in the form of subsidies to these companies, became numerous:

If we really want to get serious about the deficit, we would stop handing out billions of dollars in taxpayer subsidies to big oil companies which price gouge at the pumps. Oil company profits are at a record high, and my colleagues on the other side of the aisle are using high gas prices as an excuse to keep giving them billions in taxpayer handouts. Taxpayer-funded giveaways for big oil add to the deficit. My constituents gain nothing at the pumps, nor do Americans all across this country. Instead, we should be focusing on measures that would actually bring down the price of gas at the pump (Cicilline, U.S 112th Congress 2011: 3169).

This was quite an important development in the debate over the VEETC because, as already previously described, the VEETC included a 45 cents a gallon tax credit for gasoline blenders and was thus also known as the “blenders credit”. Being that oil companies were the main entities conducting blending, the VEETC was consequently also often considered a governmental subsidy to the oil industry. With increasing critiques in Congress of subsidies being given to oil companies while at the same time oil companies were experiencing record high profits, the VEETC was often portrayed by ethanol opponents as a waste of funds and resources going towards an industry that can survive without governmental funding. Thus, this point was a highly influential marker in the argument against ethanol and the VEETC. However, it is important to keep in mind that rising energy prices, in particular oil and gasoline, were a hotly debated topic, which, as will be later shown in chapter 6.3.2, had a major impact on the debate about the expansion/elimination of the VEETC. This was because it gave ethanol opponents the chance to present the VEETC as a wasteful subsidy

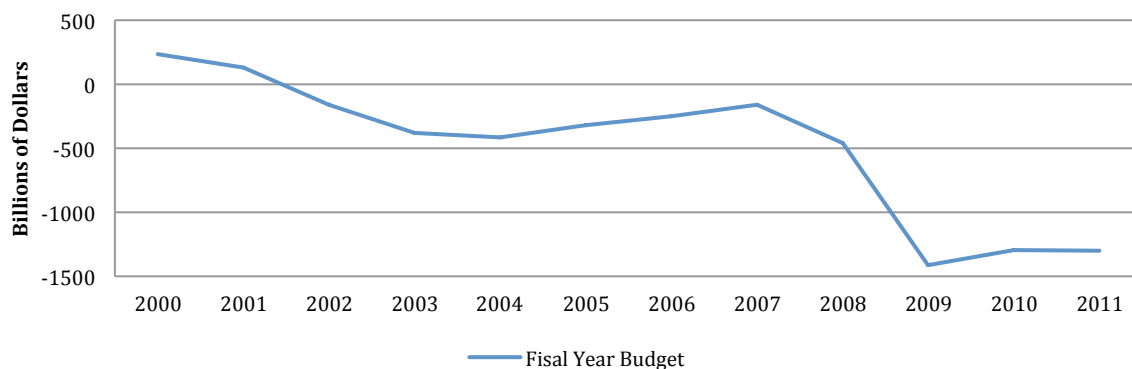
being spent on the big oil, an industry already making enormous profit, whereas ethanol proponents used this situation to blame high energy costs on rising corn and food prices, instead of ethanol.

6.2.2 Federal Economic Conditions & Problems identified

a) Increasing Federal Budget Deficit

Another vigorously debated issue in Congress was the federal budget deficit. The graph below demonstrates clearly that the unified budget deficit was rising strongly, especially from 2008 till 2009, with only a slight decrease in 2010 and 2011.

Figure 6: Annual Federal Budget Surplus or Deficit



Source: own illustration, data retrieved from OMB (2013)

The skyrocketing annual federal budget deficit, beginning in 2008, can mainly be traced back to the 2008 financial crisis, which led to an economic stimulus package of \$787 billion in March 2009 (LAO 2009) as well as to the reduced Federal income (OMB 2013) and the war on terror after 9/11, which led to an increase in defense spending of nine percent annually on average from fiscal year 2000 to 2009 (CBO 2009a). As well, there was the increasing annual mandatory spending, such as Social Security, Medicare and other mandated programs. As an examination of the congressional Records in the course of this thesis shows, statements made in Congress were in line with decreases and increases of the federal budget deficit. Meaning, whereas in 2005, 2006 and 2007 the debates about the federal budget were mainly positive, many addressed the shrinking budget deficit (Ryan, U.S 109th Congress 2005: 5777; Domenici, U.S 110th Congress 2007: 6187):

Madam Speaker, the Department of Treasury and Office of Management and Budget have

announced that today's budget deficit is \$85 billion less than last year. That marks a \$250 billion decline over the last 3 years and brings us even closer to balancing the budget (Wilson, U.S 110th Congress 2007: 11497).

Starting in 2008, policymakers began to view the growing federal budget deficit as a serious problem (Dorgan, U.S 110th Congress 2008: 323; Dorgan, U.S 110th Congress 2008: 374; Brown, U.S 110th Congress 2008: 437; Sessions, U.S 110th Congress 2008: 10611)

If we reach that level by the end of September, this will be by far the largest single year deficit in American history. Let me repeat that. We are currently in a year in which we will likely reach the largest deficit in 1 year in U.S. history (Campbell, U.S 111th Congress 2008: 5780).

In 2009, 2010 and 2011, as an examination of the congressional Material uncovers, speeches in which policymakers were addressing the problem of the high federal budget deficit and the growing federal debt, and calling for deficit reduction, seemed practically endless. In both the 111th and 112th Congress, over 60 speeches, respectively, which had the issue of high federal deficit in the title, can be found. Thus, budget deficit and the growing national debt was clearly a top issue in Congress in 2009, 2010 and 2011. Due to the high number of documents focusing on this issue, it is not possible to individually give examples, but in short, it can be said that all pointed out the fact that the U.S budget deficit rose to a record level, and that it was “time to stop digging the deficit hole” (Schmidt, U.S 111th Congress 2009: 14984). Consequently, many of the Congressional debates and hearings dealing with the issue of the record high federal budget deficit and continuous growing national debt, also asked the question of what factors caused this explosion in the budget deficit and how this problem can be dealt with, respectively, how the federal expenditure can be reduced:

Well, we hear now that the Republican majority is serious about the deficit , and that's good news because we are running up a huge pile of debt which is going to be handed on to our kids and our grandkids and won't be paid off over 30 years. Some of this debt will weigh upon the country. But the question is, how do we get there? The deficit this year will be \$1.5 trillion, an unimaginable amount of money, borrowed, a lot of it from China, and that is just virtually unfathomable (DeFazio, U.S 112th Congress 2011: 555).

The corresponding answers and proposals in Congress were numerous, but an often mentioned recommendation was to cut expenditures for oil companies, especially in times of record high profits (Schumer, U.S 112th Congress 2011: 2818):

Well, how about the oil companies? Now, Exxon Mobil reported the largest quarterly profit for a corporation in the history of the world the last quarter of last year, \$9 billion, and they didn't pay any taxes in the U.S. last year. None. They pay a lot of taxes around the world, but not in the United States. We actually gave them a tax refund because of the loopholes in the tax laws. That's called a tax expenditure. We're borrowing money to give to the Exxon Mobil Corporation, which had a \$9 billion profit by gouging consumers in America. Now, that's pretty extraordinary; but, no, we can't talk about eliminating the subsidy to Exxon Mobil. The Republicans have put that off-limits. That would be called a tax increase. You know, by plugging that loophole, that's a tax increase, can't talk about that (DeFazio, U.S 112th Congress 2011: 555)

As a result of high levels of federal debt, several policymakers were able to agree on making cut-backs on governmental funding to oil and gas industry, but being that the production of fossil fuels in the United States was and is supported by several subsidies, the issue of which governmental spending to the oil and gas industry should be eliminated, was a controversial one. For example, on the one hand, due to the fact that the gasoline blenders were the main beneficiaries of the VEETC, policymakers that wanted to see the VEETC eliminated argued that this “subsidy given to these oil companies costs taxpayers billions of dollars every year, [...] even though it does very little to promote the use of ethanol which oil companies already must use under current law [RFS and RFS2]” (Feinstein, U.S 112th Congress 2011b: 3852). Another often used argument brought up by these policymakers when debating governmental spending on big oil was the fact that the main beneficiaries of the VEETC - gasoline blenders as well as one of their main national representative organizations, the NPRA - made clear that the VEETC is unnecessary:

British Petroleum, Valero, ExxonMobil, Chevronto do not want it. I have a letter from them saying they don't want the blenders' credit. That is who gets it. Only 16 percent of the ethanol is produced by farmer cooperative ethanol plants; 84 percent is not. It is produced by the big boys and they are saying they don't want it (Coburn, U.S 112th Congress 2011b: 1968).

On the other hand, Members of Congress that backed ethanol and an extension of the VEETC reasoned that if the argument was cutting federal spending on the oil and gas industry, then a look needed to be taken at several other subsidies given to the oil industry, which have “cost the American people as much as \$114 billion from 1968 through 2000” (Grassley, U.S 112th Congress 2011b: 3720), such as the intangible drilling costs and the percentage depletion allowance (Grassley, U.S 112th Congress 2011b: 3720). These congressmen also argued that “it shouldn't surprise anyone that the oil refiners and big oil

are advocating a position that would reduce the competitiveness of renewable ethanol” (Grassley, U.S 112th Congress 2011b: 3719). However, how the problem of an increasing federal budget deficit, the resulting pressure on the oil and gas industry and its subsidies, including the VEETC, were used as argumentation and linked with several other problems by policymakers to justify the repeal of the VEETC will be further clarified in Chapter xx. With this in mind, the following can be said: An assessment of the research material indicated the growing federal budget deficit was not only increasingly described and highlighted as a problematic situation, but it was already also revealed in advance that budgetary considerations had become a clear and always present characteristic of most dialogues on ethanol. In other words, budgetary contemplations seemed so prominent to discussions of ethanol that it seemed almost odd and off topic for a speaker or author to discuss ethanol without bringing into dialogue its effect on the budget.

In summary, it can confidently be said that especially the highlighted problems of rising food and corn prices and the increasing federal budget deficit significantly contributed to the rise of proposals that aimed for the elimination of the VEETC. This is because both problems were highly debated and posed an important issue in Congress between the 109th and 112th Congress. As will be further shown in chapter 6.5, these problems were exceedingly discussed and interconnected with corn ethanol and its subsidies, and therefore offered a breeding ground for arguing for the elimination of the VEETC. However, the rise of specific problems alone does not instinctively generate satisfactory circumstances to further push a proposal onto the governmental and decision agendas because policymakers and advocacy groups also participate in deliberations over how to classify an issue, the cause of said issue, and potential solutions. Therefore, the debate over problem resolutions, or what Kingdon calls the ‘policy stream’, in which “proposals, alternatives, and solutions float about being discussed, revised, and discussed again” (Kingdon 1995: 172), is a critical part of the agenda-setting process, and is therefore examined in the next section.

6.3 Policy Stream

Having already described the influential problems that provided favorable conditions for reasoning for a repeal of the VEETC, this section concerns itself with the ideas and strategies that governmental institutions, interest groups and the research community came up with in order to confront the identified problems. Consequently, by examining the available

research material, which is comprised of primary and secondary sources, this chapter intends to identify the most essential actors involved in pushing the Ethanol Subsidy and Tariff Repeal Act of 2011 onto the governmental and decision agendas as well as the steps these actors took to promote the proposal of a formulation procedure.

6.3.1 Governmental Actors

As well as in the policy stream of the EPO Act of 2005, some federal agencies had a prominent role in advancing the idea of modifying, phasing out or immediately terminating the VEETC. However, since any change or modification would have resulted in less support for corn ethanol, no matter what, the governmental agencies that were most visible in advancing awareness that the VEETC constituted a subsidy capable of being reconsidered, differed somewhat from those who were at work on the ethanol related part of the EPO Act of 2005. Although the USDA and DOE expressed vaguely that their may be better policy options to achieve the same outcome than the VEETC, the most distinct contributors in the policy stream were the Congressional Research Service (CRS), the U.S. Government Accountability Office (GAO), and the Congressional Budget Office (CBO), which the following section will discuss.

a) The Role of the Congressional Research Service (CRS)

The CRS is well known as Congress' think tank and therefore provides “policy and legal analysis to committees and Members of both the House and Senate, regardless of party affiliation” (CRS 2013). According to the current research, the CRS was one of the first governmental actors who raised concern about the VEETC. Already in 2006, the CRS highlighted the following in a report, which was prepared for the use of the Committee on the Budget:

With a renewable fuels standard the tax credits no longer become incentives for demand and production, but increase profits for ethanol producers and farmers, raise costs for refiners (as ethanol prices increase), and increase fuel prices for consumers. This leads to not just substantial losses in federal tax revenue, but additional economic distortions in fuels and agricultural markets (CRS 2006: 98).

Further in 2010, the CRS pointed out the economic consequences that the RFS2 in connection with the VEETC would have on federal expenditures for biofuels.

Under the RFS2, federal tax credits alone will expand dramatically during the life of

the program. Based on CRS calculations, federal biofuels tax credit subsidies will grow from about \$6.7 billion in 2010 to over \$27 billion in 2022, under the assumption that the RFS is fully met and that all tax credits are extended through the entire period (Figure 3). The total liability from 2008 through 2022 under these same assumptions is estimated at nearly \$200 billion (CRS 2010: 16).

Even though these findings regarding the VEETC were not directly stated by the CRS in Congress, these highlighted numbers, recommendations as well as the position that the CRS took regarding the biofuel tax credit subsidies, were occasionally picked up by Congressman and interest groups that pushed for a repeal of the VEETC. For example, Senator Jeff Bingaman (D-NM), who was actually known as a longtime supporter of biofuels and who was chairman of the powerful Senate Energy and Natural Resources Committee until 2013, used the CRS's findings to argue for a push to cut the cost of intensive biofuel subsidies. He highlighted that "according to the Congressional Research Service, the VEETC (ethanol tax credit) will cost the American taxpayer \$7.6 billion this year alone [which] makes the VEETC by far our Tax Code's largest subsidy for renewable energy [and described corn ethanol] as mature technology whose market share is protected by an aggressive Renewable Fuel Standard" (Bingaman 2010). Therefore, in conclusion, the CRS's findings regarding the VEETC were not as shattering and influential as the results from GAO and CBO, but they provided a breeding ground for various policymakers to highlight the rising cost of the VEETC in combination with the ethanol mandates that were in place.

b) The Role of the U.S. Government Accountability Office (GAO)

The GAO can be described as the audit and investigative arm of the U.S. Congress. It specifies government repetition that is wasting federal resources and is therefore often referred to as "The Congressional Watchdog" and "The Taxpayers' Best Friend" (GAO n. d.).

Between the 110th and the 112th Congress, the GAO released various reports in which they addressed and reviewed the federal efforts directed at increasing domestic biofuel production. Already the 2007 released report - *DOE Lacks a Strategic Approach to Coordinate Increasing Production with Infrastructure Development and Vehicle Needs* (2007) - which "assess[ed] the extent to which the Department of Energy (DOE) has developed a strategic approach to coordinate the expansion of biofuel production, infrastructure, and vehicles and has evaluated the effectiveness of biofuel tax credits" (GAO 2007), had not given the VEETC a very positive reference.

The tax credits provided under the VEETC cost the federal government about \$2.7 billion in forgone revenue in 2006, [that] these large tax expenditures have resulted in the production of more ethanol than would have occurred without them, or produced specific outcomes, such as reducing petroleum imports, is unknown [and that], it is not known if similar benefits or outcomes might be achieved by less costly means (GAO 2007: 8).

Later in 2009, when Senators Barbara Boxer (D-CA) and Susan Collins (R-ME) asked the GAO to examine the potential effects and challenges of the required increases in biofuels production and use, the GAO concluded the following:

The VEETC does not stimulate the use of additional ethanol under current market conditions, [and that] in light of this situation, some recent studies have suggested that the VEETC be terminated or phased out or be revised (GAO 2009: 93).

Even though the 2009 report had already highlighted the growing expenditures for the VEETC with the RFS2 in place, the GAO, in March 2011, released an additional report that pointed out the following:

The ethanol tax credit is largely unneeded today to ensure demand for domestic ethanol production, [because] the ethanol tax credit and the renewable fuel standard can be duplicate in stimulating domestic production and use of ethanol, and can result in substantial loss of revenue to the Treasury. If authorized and left unchanged, the VEETC's annual cost to the Treasury in forgone revenues could grow from \$5.4 billion in 2010 to \$6.75 billion in 2015 (GAO 2011: 59).

Interestingly, even though the GAO highlighted the increasing costs of the VEETC and the fact that the "ethanol tax credit is largely unneeded today to ensure demand for domestic ethanol production" (GAO 2011: 59), it seems that already in 2007 these findings were not utilized or addressed intensively before 2011. Although statements in congressional hearings before 2011 can be found in which, for example, Senator Bingaman (D-NM) (Bingaman 2010: 9009) took advantage of the GAO's conclusions to argue against the 45 cents per gallon extension of the VEETC through December 31st 2011 in the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010 (U.S. 108th Congress – P.L.357, U.S. 108th Congress – H.R.4520), it seems that only the March 2011 released GAO report could fully capture the attention of Congress members and interest groups that were supporting the repeal of the VEETC. For example, shortly after publication, the related findings of *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue* (2011) on federal spending on biofuel

incentives were found in the press releases of Senator Coburn (R-OK), who together with senator Ben Cardin (D-MD), only a week after, introduced the Volumetric Ethanol Excise Tax Credit Repeal Act (U.S. 112th Congress – S.520). However, such citations – which were utilized to push forward the repeal of ethanol subsidies - can not only be found in the press releases of Senator Coburn (R-OK) and House Representative Leonard Lance (R-NJ) (Lance 2011), but also in congressional debates. Congressmen, such as senator Coburn (Coburn, U.S 112th Congress 2011b: 1967) and Cardin (Cardin, U.S 112th Congress 2011: 3857), referred to the scathing criticism of the GAO as well as to a broad coalition of interest groups, which expressed their support, and which consisted of representatives of the livestock, poultry and food industry, business associations, taxpayer advocates, hunger and development organizations, agricultural groups, free-market groups, religious organizations, environmental groups, etc. Thus, even though, since 2007, the GAO had displayed the VEETC as a non effective and expensive biofuel incentive, the 2011 released *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue* report, seems to have focused the issue and provided an excellent platform for proponent policymakers and interest groups to argue against the decision for an extension of the VEETC and for its immediate repeal.

c) The Role of the Congressional Budget Organization (CBO)

Similarly, beginning in 2009, less than positive appraisals and conclusions regarding the VEETC were published by the Congressional Budget Office (CBO). The CBO is a nonpartisan federal agency that produces “independent analyses of budgetary and economic issues to support the Congressional budget process” (CBO n.d.). In the report titled *The Impact of Ethanol Use and Food Prices and Greenhouse-Gas Emissions* (2009), this federal agency concluded that “the upswing in the demand for corn to be used in producing domestic ethanol raised the commodity’s price, CBO estimates, by between 50 cents and 80 cents per bushel between April 2007 and April” (CBO 2009b: 7). The consequences of the “rise in food prices attributable to increased production of ethanol will lead to higher federal spending for those programs: specifically, an estimated \$600 million to \$900 million” (CBO 2009b: VIII).

One year later, in July 2010, shortly before the debate about whether the VEETC should be extended through to the 31st of December was entering its final round, the CBO, on request of Senator Bingaman (D-NM), published an additional report in which this federal agency, amongst other research scopes, “estimate[d] the cost to U.S. taxpayers of reducing

the use of petroleum fuels and emissions of greenhouse gases through [biofuel] tax credits” (CBO 2010). Identical to the GAO reports, several findings of this CBO study - for example that “ethanol tax credits cost taxpayers \$1.78 for each gallon of gasoline consumption reduced, and \$750 for each metric ton of carbon dioxide equivalent emissions reduced” (Feinstein, U.S 112th Congress 2011c: 1544) - were used by congressmen, such as Senator Bingaman (D-NM), Coburn (R-OK) and Feinstein (D-CA) as well as by various representatives of interest groups, such as Taxpayers for Common Sense (TCS), American Meat Institute (AMI), Environmental Working Group (EWG), Grocery Manufacturers Association (GMA) and the Natural Resources Defense Council (NRDC). Essentially, it can therefore be said that the federal agency CBO, with its assessment reports, also provided an important cornerstone for the push against the VEETC subsidy. The results were often cited in letters to congressional members, searching for support for the elimination of the 45 cents a gallon tax credit for gasoline and the 54 cents per gallon Import Tariff on ethanol and provided a well-substantiated line of argumentation for their goal.

d) The Role of the USDA

While the USDA was a very influential and highly visible governmental actor in pushing forward the RFS, when it came to take a side for the extension of the VEETC, the USDA’s efforts could only be partly exposed. On the one hand, the USDA continued to question to which extent ethanol and rising food prices were related, concluding that “recent factors that have further tightened world markets include increased global demand for biofuels feedstocks and adverse weather conditions in 2006 and 2007 in some major grain- and oilseed-producing areas” (Trostle 2008: 28); yet on the other hand, they continued to express their position on ethanol incentives. The USDA’s most visible representative in the matter of extending the VEETC was former Iowa Governor and Secretary of Agriculture, Tom Vilsack. As by the end of 2010, increased pressure by various policymakers and interest groups had caused the VEETC to be allowed to expire, Vilsack, in his speech at the National Press Club stated the following:

Incentives helped build the biofuel industry and for the time being, incentives need to continue. Congress should start by reinstating the Biodiesel Production Tax Credit and providing a fiscally responsible short-term extension of the Volumetric Ethanol Excise Tax Credit. [...] We have already seen what happens when incentives are ended too quickly. The recent lapse of the biodiesel tax credit cost that industry jobs – nearly 12,000 jobs were lost as production was cut in half– these are jobs we simply cannot afford to lose. (Vilsack 2010)

In doing so, in October 2010, Vilsack clearly expressed the USDA's support for a short-term extension of the VEETC; however, he also acknowledged that "we need to begin to think about reforms to the ethanol credit program to make it more efficient and effective at addressing the full range of challenges we face in meeting our goals for traditional and next generation biofuels" (Vilsack 2010). Thus, he seemed to be aware of the increasing cost the VEETC would have had in conjunction with the constant growing ethanol mandates until 2022. This was also confirmed by the USDA's Economic Research Service (ERS) entitled report *Effects of Increased Biofuels in the U.S. Economy in 2022* (2010), which examined the potential impacts of the RFS2. It concludes, among other findings, that "the actual level of benefits (or costs) to the U.S. economy depends importantly on future oil prices and whether tax credits are retained in 2022" (Gehlhar et al. 2010). Besides supporting the short-term extension of the VEETC by the end of 2010, it seems the USDA was relatively restrained, as debates, beginning in March 2011, on the repeal of the VEETC, again ignited. Whilst Vilsack made clear, after the successful 73-27 vote in favor of the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.Amdt.476), that "cutting off support for the industry [was not] the right approach [and therefore the USDA] oppose[ed] a straight repeal of the Volumetric Ethanol Excise Tax Credit (VEETC) and efforts to block biofuels infrastructure programs", there was not much evidence of the USDA being a driving force for the idea of modifying the VEETC. Although the USDA indicated support for "[the] effort currently underway in the Senate to reform and modernize tax incentives and other programs that support biofuels" (Vilsack 2011), no recommendations or arguments can be found in congressional debates nor in speeches by representatives in which the USDA addressed the topic of the VEETC between 2010 and 2011.

Therefore, it possibly could be argued that even though the USDA called for the modification of the VEETC and not its elimination, by recognizing that the ethanol credit program in combination with the RFS2 would increase federal spending and conceding that the ethanol credit program needs reforms, without demonstrating competent solutions or possibilities of reform, the USDA's efforts for the extension of a reformed VEETC, was not capable of bearing successful outcomes.

Shortly stated, the research material used in this current chapter makes clear that the majority of governmental actors that were visible in the discussion regarding future actions to be taken in reference to the VEETC painted a negative picture of the cost/benefit ratio of the VEETC. Although, according to the research conducted in this study, these governmental

actors were not directly represented in Congress, through their publications, which among other topics, assessed federal efforts directed at increasing domestic biofuel production, these governmental actors played a crucial role. Essentially, the results of these publications were preferably used by policymakers and interest groups in that they provided the data and conclusions necessary to prove the desired point. Thus a breeding ground for arguing against an extension of the VEETC subsidy and then later a complete elimination of the VEETC was established.

6.3.2 Interest and Lobbyist Groups

According to Kingdon, interest groups are important players in policy-making. On the basis of one or more mutual concerns, they seek to influence policy outcomes usually through lobbying politicians and governmental representatives. Therefore, interest groups, which proved to be particularly active and who seemed to have a significant role in promoting the idea of an immediate repeal with the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476), will be demonstrated in the first part of this chapter. The second part of this chapter endeavors to distinguish the most noticeable of those groups who disputed this advancement.

a) The Role of Proponent Interest Groups

Due to the fact that there was quite an overwhelming, diverse coalition of interest groups that were advocating for the elimination of the VEETC, rather than displaying the role of every single organization, which would be beyond of the scope of this study, this section will describe the actions that this broad coalition has undertaken and highlight various interest groups that seemed to stand out. This approach seems appropriate, since the majority of the proponent interest groups did not approach Congress members individually; instead, they mostly drew attention to their legitimate interests in the form of a broad coalition, involving a dozens representatives from the livestock, poultry and food industry, business associations, taxpayer supporters, hunger and development alliances, agricultural organizations, free-market advocates, religious associations, environmental factions, etc. A further important decisive reason for displaying the proponent interest groups as a whole is the fact that this diverse coalition had a very coherent line of argumentation. For example, it did not matter if these interests groups acted in the coalition or as a separate entity, the argumentation

against an extension of the VEETC subsidy and then later for a complete elimination of the VEETC, always consisted of the following: (1) high federal costs, which will continuously increase until 2022, (2) that the VEETC is largely unnecessary today to safeguard demand for domestic ethanol production, (3) that increased ethanol production was a major driver of corn and food prices in the last four years, which caused additional vast costs to the government and that (4) “leading economists agree that ending it would have little impact on [...] prices or jobs” (Geman 2010).

However, now that it is clear that these groups from across the political spectrum had a very uniform appearance, let's have a closer look at their Congress related actions. While some representatives of the livestock and food industry, between the 110th and 111th Congress, pointed out rising corn and food prices as well as the associated connection to the expanded corn ethanol production in Congress, according to the current research, it appears as if there was not much effort being put towards blaming the VEETC specifically until 2010. That changed in 2010, as it once again came time to extend the VEETC through to the 31st of December.

The first actions of opposition towards the extension of the VEETC came from a coalition of around 14 environmental groups, which was comprised of, amongst others, the Clean Air Task Force, the Environmental Working Group, Friends of the Earth, the Natural Resource Defence Council, the Sierra Club, etc. In April 2010, they sent a letter to Max Baucus (D-MT), Chairman of the Senate Committee on Finance, and to Sander M. Levin (D-MI), Chairman of the House Committee on Ways and Means (CWM), stating that the VEETC “will cost US taxpayers \$5.4 billion for corn ethanol this year alone and do[es] nothing to drive green jobs, increase national security, or better environmental performance. [Therefore] Congress should let the VEETC expire and invest that money more wisely” (FOE 2010a). Only three months later, a merge of around 20 hunger, farmer, religious and development organizations, amongst them Oxfam America, Family Farm Defenders, the Oakland Institute, etc., addressed a very similar letter to the Senate Committee, specifically to Chairman Max Baucus (D-MT) and to Ranking Member Charles Grassley (R-IA). The same as the partnership of environmental groups, these organizations highlighted the high costs of the VEETC and ethanol's contribution to rising food and land costs by stating that “a World Bank analysis found that increased demand for biofuels from the US and also Europe contributed to 75% of the rise in food prices during the same crises”(FOE 2010b). This merge also pointed out the VEETC's main beneficiaries, such as the oil industry, and concluded that in the “age of financial austerity [...] on the chopping block should be unnecessary, wasteful

subsidies such as VEETC” (FOE 2010b). Further, they called for taking “a stand against wasteful taxpayer spending and allow[ing] VEETC to expire” (FOE 2010b).

As a result and in order to placate those who did not want to prolong the VEETC, the House Committee of Ways and Means (CWM) dispersed a draft bill that would have stretched and also changed the VEETC from 45 cents to 36 cents. As well, discussions in Congress also occurred regarding a reduced VEETC. However, since oppositional interest groups, such as the RFA, ACE, NCGA, and the AFBF, did not stand by powerlessly and urged action according to their preferences in reference to the expiring VEETC, discussions on a reduction or expiration of the VEETC fell into the background. In response, since most of the proponent interest groups, who called for congressional support to letting the VEETC expire, could not become friendly with the idea of an extended VEETC with a 20 percent reduction, and because by November 2010, it did not seem like there was determination in Congress to decide for the abandonment of a 30 year old subsidy in such a short time, around 60 organizations acting on behalf of the food industry, animal agriculture, environmental groups, and budget watchdogs, many of them already involved in former letters to Congress, again, urged Congress to allow the VEETC to expire. The letter underlined that “letting the VEETC expire will help control deficit spending without in any way hindering the development of advanced biofuels” (FOE 2010c) and was addressed to Senate Majority Leader Harry Reid (D-NV), to Senate Minority Leader Mitch McConnell (R-KY), to House Minority Leader John Boehner (R-OH) and to Speaker of the House Nancy Pelosi (D-CA). In 2011, according to the current research, this growing coalition missed no opportunity to demonstrate their coherent position regarding the VEETC. Again, in March 2011, a letter that urged for the allowance of the VEETC to expire signed by 90 interest groups from diverse social and political branches, was sent to the Senate Majority and Minority Leader (FOE 2011a) and as the Repeal Ethanol Subsidies Today Act (U.S. 112th Congress – H.R.1188) was introduced by House Representative Leonard Lance and Earl Blumenauer, a letter was provided that demonstrated the coalition’s support (FOE 2011b). The same was the case when in May 2011, Senator Coburn (R-OK) and Feinstein (D-CA) introduced the Ethanol Subsidy and Tariff Repeal Act U.S. 112th Congress – S.871) (FAO 2011c). Later, in June 2011, Senator Coburn (R-OK) proposed the Ethanol Subsidy and Tariff Repeal Act as Amendment 436 (112th Congress –S.Amdt.436) and Senator Feinstein (D-CA) offered Amendment 476 (112th Congress – S.Amdt.476) to the Economic Revitalization Act of 2011 (112th Congress – S.782). As well, a letter demonstrating the interest group coalition’s support was sent to Senate Majority Leader Harry Reid (D-NV) and to Senate Minority Leader Mitch McConnell

(R-KY) (FOE 2011d, FOE 2011e). These actions illustrated, on the one hand, that there was great interest and support to eliminate the VEETC across the political spectrum and, on the other hand, delivered an additional basis for congressmen to argue for doing so by declaring their support. This backing did not seem to cease, even as the Senate voted 73-27 in favor of the Amendment 476 (112th Congress – S.Amdt.476) to the Economic Revitalization Act of 2011 (112th Congress –S.782). Also, by mid 2011, this large consortium of interest groups did not spare efforts to push further for Congress’s allowance of the expiration of the VEETC. In September and November 2011, again, letters were sent to various representatives of the CWM, (FAO 2011f) as well as to Majority and Minority Leaders of the Senate and the House of Representatives (FAO 2011g) in order to continue to exert pressure on Congress to push forward their common goal. In addition, the interest group, Moloch, not only engaged Congress as part of an interest group coalition, which also had quite an echo in the press, but many of its members were also very active in the media and the public. For example, when searching on the Internet for information on the VEETC in the period of 2008 to 2011, a clear picture emerges that environmental groups, such as the Natural Resources Defense Council (NRDC), Friends of the Earth (FOE), Environmental Working Group (EWG), the Sierra Club as well as representative of the livestock and food industry, such as the American Meat Institute (AMI), National Chicken Council (NCC), American Bakers Association (ABA), and budget hawks, such as the Taxpayers for Common Sense (TCS) and the National Taxpayers Union (NTU), had been massively active in spreading their argumentation against the extension of the VEETC throughout 2010 and 2011. It is important to also mention that even though most petrochemical refiners expressed “neutrality” about whether to extend the VEETC and ethanol import tariff (HartWRFS 2011), as criticism of the high yearly profits were increasingly linked with the VEETC, it seems they did not care much about the VEETC and tried to distance themselves from the subsidy. By March 2011, this reached a point where the NPRA even informed Senator Coburn (R-OK) of their support for the Volumetric Ethanol Excise Tax Credit Repeal Act (U.S. 112th Congress – S.520) and the Amendment 220 (112th Congress – S.Amdt.220) to the SBIR/STTR Reauthorization Act of 2011 (112th Congress –S.493), which also would have eliminated the tax credit subsidy of ethanol. Therefore, even though the oil industry was the main beneficiary of the 45 cents per gallon VEETC, the proponent interest groups also had the powerful oil industry’s lobby on their side. The NPRA, in publicly admitting that they opposed the credit, calling it a waste of taxpayer funds, and basically saying that they did not want such a measure, was without question an additional blow to efforts towards an extension of the VEETC.

However, these above mentioned organizations represent only the most visible of those actively against the VEETC. Since many more organizations, who were actively lobbying against the continuation of the VEETC, can be found - specifically, a fairly large number of around 100 interest groups - a table with an overview of the proponent interest groups is not presented here because of space reasons, but is available by request made to the author.

In summary, the overwhelming number of over 100 interest groups from across social, economic and political areas and their cohesive appearance as well as the efforts these organizations put into lobbying against the extension of the VEETC, most certainly influenced Congress, since it was essentially impossible to not be moved by such an overwhelming and diverse community of interest. However, a look closer also reveals that at the time of the RFS debate, there were only a few environmental groups, such as the NRDC and the Sierra Club, that committed themselves to opposing incentives for ethanol production, whereas after rising corn and food prices and increased governmental spending on the VEETC, various interest groups from the livestock and food industry, free-market groups, religious organizations, budget hawks and public interest organizations joined the pool of groups backing against ethanol incentives, especially against the VEETC.

b) The Role of Oppositional Interest Groups

While an overwhelming large number of interest groups can be found that fought for the VEETC to expire, only five could be identified that were continuously lobbying to make sure that the ethanol industry still “benefit[ed] from a triple crown of government intervention: its use is mandated by law, it is protected by tariffs, and companies are paid by the federal government to use it” (Feinstein 2011d). These organizations were already decisively involved in the push for the RFS and represent mainly the ethanol industry as well as farmers, specifically corn growers. As one might predict, the talk is of the Renewable Fuel Association (RFA), the American Coalition for Ethanol (ACE), Growth Energy, the National Corn Growers Association (NCGA) and the American Farm Bureau Federation (AFBF). Starting in early 2010, the RFA, ACE, NCGA and AFBF, in opposition to the large merge described in the chapter above, took a course of action in the contest to extend the VEETC. Not long after Congressman Earl Pomeroy (D-ND) introduced the Renewable Fuels Reinvestment Act in the House of Representatives (U.S. 111th Congress – H.R.4940) and Senator Charles Grassley (R-IA) introduced the GREEN Jobs Act of 2010 (U.S. 111th Congress – S.3231) in the Senate, which were in an attempt to extend the 45 cents per

gallon VEETC and the 54 cents per gallon Import Tariff for five more years, these interest groups joined in support with these legislations.

On March 25th 2010, Congressman Earl Pomeroy (D-ND) introduced House Bill 4940 (U.S. 111th Congress – H.R.4940), the Renewable Fuels Reinvestment Act, into the House of Representatives and Senator Charles Grassley (R-IA) introduced Senate Bill 3231 (U.S. 111th Congress – S.3231), the GREEN Jobs Act of 2010, in the Senate on April 20th 2010. Both bills were a bid to extend the 45 cents per gallon VEETC and the 54 cents per gallon Import Tariff for five more years. The RFA for example, also addressed in a letter to Sander M. Levin (D-MI), Chairman of the House Committee on Ways and Means (CWM), the following argumentation:

By including an extension of these important incentives in any green jobs legislative package, Congress will advance the goal of providing cleaner, renewable energy alternatives and save existing green jobs while promoting additional job opportunities from an expanding biofuel industry (RFA 2010a).

It is fairly obvious that the oppositional interest groups pursued the same strategy as their counterpart in reaching their common goal. In addition to addressing the House Committee on Ways and Means (CWM) as well as the proponent interest groups, the RFA, ACE, NCGA and AFBF also sent letters to those congressmen, who introduced bills that were in favor of their interests. Specifically, these congressmen were Senator Chuck Grassley (R-IA), House Representative Earl Pomeroy (D-ND), and cosponsors of the GREEN Jobs Act of 2010 the Renewable Fuels Reinvestment Act, such as Senator Kent Conrad (D-ND) and House Representative John Shimkus (R-IL) (RFA 2010b). However, even though the oppositional interest groups pursued a similar approach so as to secure the continuance of the VEETC, the research uncovered that the representative organizations of the ethanol industry as well as some of its members that they represented did not always play along in the course of action to fight for the VEETC. For example, even though RFA, ACE and Growth Energy had the same goal, namely to promote the use of ethanol, Growth Energy in 2010 had a quite different idea of how to further offer support. Rather than pushing for the extension of the VEETC, they suggested “permanently scal[ing] back the current ethanol tax credit [and] for a limited time, that money would be redirected toward blender pump installation” (Broin 2011). Since Growth Energy did not confine themselves to talk about this in internal conferences, but proposed these modifications of the VEETC in their *Fueling Freedom Plan* (TheAutoChannel 2010), by mid 2010, some degree of fragmentation was generated

between the representatives of the ethanol industry. In addition, some degree of fragmentation between the ethanol industry's members during this time could also be identified. For example, POET LLC, the second-largest U.S. ethanol producer, after Archer-Daniels-Midland Co. (ADM), advocated for the Growth Energy's Fueling Freedom plan, but did not stand up for the RFA and ACE's march for the extension of the non modified VEETC as before. This is clearly proven by the speech of POET LLC's CEO Jeff Broin, which was directed at the Senate Committee on Agriculture, Nutrition, and Forestry, and in which he made clear that "POET supports reform, reform that focuses on the build-out of infrastructure. Growth Energy's Fueling Freedom plan is an outline for that" (Broin 2011). In addition, when it came more and more apparent that it was the main oil refiners who largely benefit from the VEETC, these companies, such as the Valero Energy Corporation, also seemed to step out of line in fighting for the extension of the VEETC. For instance, because Valero is big in business with not only refining ethanol in gasoline, but also with producing it - which means that neither an extension nor the repeal of the VEETC would have been a loss for Valero because less gasoline produced from ethanol would have had deprived a rising demand for gasoline from oil - Gene Edwards, Valero's executive vice president for corporate development and planning stated in a July conducted interview that "you would not see blending down one barrel because of the credit being gone" (WashingtonWatch 2010). This was because ethanol was trading for 30 cents per gallon under gasoline and therefore not needed (WashingtonWatch 2010). He also added, that from an ethanol manufacturing stand point, the VEETC is almost irrelevant today because it is not ethanol plants who are really capturing the credits, it is the refiners, who blend ethanol into gasoline and therefore earn the 45 cents tax credit (WashingtonWatch 2010). These different positions on the VEETC taken by representing interest groups of the ethanol industry as well as the breaking of ranks from major ethanol producers, such as Valero and POET LLC, were of course, not good preconditions for ethanol representatives, such as RFA and ACE, for fighting for a further five year extension of the VEETC. It is clearly shown that, whereas ethanol proponents during the debates of a RFS within the Energy Policy Acts were able to represent themselves in a coherent manner and as a cohesive unit, when it came to pushing forward the extension of the VEETC and the import tariff, this was not the case. These conditions without question had a degree of influence on Congress' decision that it was time to let the VEETC expire, in that a situation of instability is not an ideal condition for developing a joint state. However, this did not keep the oppositional interest groups in 2011 - worth mentioning here in particular is the RFA - from further initiating measures to convince Congress of the appropriateness of

the VEETC. Above all, this involved mainly responding in a defensive attitude to the argumentation of interest groups that advocated for the abolition of the VEETC. For example, in response to statements made by Senator John McCain (R-AZ) and Senator John Barrasso (R-WY), that present ethanol tax and trade guidelines were criminal under World Trade Organization (WTO) agreements, Bob Dinneen, on the behalf of the RFA, replied to each Senator that their “assessment of the policies’ compliance with WTO strictures is simply incorrect and not supported by any reasoned analysis or WTO precedent” (RFA 2011a). In regard to the accusation that the VEETC is a high cost federal subsidy that has little impact on ethanol production, the RFA argued that when talking about costly subsidies, why not eliminate subsidies to oil companies declare tens of billions of dollars in profit quarterly:

If the committee is truly seeking to eliminate wasteful and market-distorting spending, we urge you to begin by rescinding permanent tax subsidies for the oil industry. Several tax loopholes, such as the Section 199 deduction for all oil and gas activity, the deduction for intangible drilling costs, and the depletion allowance for oil and gas wells, are available only to oil and gas companies and further strengthen the monopoly these companies have on the nation’s gasoline market. Removing these and other provisions would save at least \$40 billion over the next decade – a pittance compared to the annual profits of oil (RFA 2011b).

Regarding the impact of the VEETC, the RFA opposed the idea that “losing the tax incentive now w[ould] shutter plants and cost tens of thousands of jobs” (RFA 2010c). Towards the claim that amplified ethanol production was a major backer of the last years’ corn and food prices, the RFA countered that it was the price of oil and causes of market speculations that have driven the price of food and key grains:

Look how silly the food versus fuel debate looks today. In 2008, ethanol was the cause of rice shortages, pasta riots, and the increased price of everything from popcorn to tortillas to beer. [...] With the media frenzy dissipated and the benefit of hindsight and data, most economists now acknowledge what we said all along: the skyrocketing price of oil, speculation in commodity markets and monetary policy were responsible for food price inflation – not ethanol (RFA 2010d).

It is important to also mention that by mid 2011, after the Senate voted 73-27 in favor of eliminating the VEETC and the Import Tariff, the RFA, in a final attempt, soon after took a different path to give the VEETC new life. While the RFA and ACE clearly did not support the extension of the VEETC under modified conditions in 2010 and in the first six months of 2011, beginning in July 2011, the RFA concentrated all their effort on support of the Ethanol Reform and Deficit Reduction Act (U.S. 112th Congress – S.1185), which would have

transformed the current VEETC structure from the ground up. Introduced by U.S. Senators John Thune (R-S.D.) and Amy Klobuchar (D-Minn.), S.1185 would have ended the VEETC ethanol incentive on July 31st rather than permitting it to expire as slated at the end of 2011. Further, the two-thirds savings would have been used to reduce debt and the remaining one-third would have gone to other renewable fuel incentives (RFA 2011b).

In synopsis, that oppositional interest groups, such as the RFA, ACE and NCGA, pursued a very similar approach to secure the continuance of the VEETC, as the proponent interest groups took to pushing the elimination of the extending of the 45 cents per gallon tax credit and the 54 cents per gallon Import Tariff. They addressed the CWM, expressed their support to those congressmen, who introduced bills that aimed for the extension of these ethanol incentives, and also did not spare effort to push for the VEETC in media and public. However, the way in which these lobbying efforts were implemented differed from the interest groups that aimed for the opposite. First, since there were not many interest groups visible in the debates or putting effort into pushing for the extension of the VEETC, influence did not reach the potential of the massive proponent coalition of interest groups. Second, the representing interest groups of the ethanol industry as well as their members had partly different positions on how to proceed on the VEETC. This was not the case with proponent interest groups, who had a clear presentation of how to proceed with the VEETC, meaning not at all, and they also argued in a continuous, cohesive way. This was also not the circumstance with oppositional interest groups because especially the ethanol industry's interest groups shifted from arguing for the extension from an unmodified VEETC to pushing for the extension of the VEETC under modified conditions by mid 2011. Fourth, since the most visible efforts of oppositional interest groups, such as the RFA, was counter argumentation to the line of reasoning of the proponent interest, these oppositional interest groups, especially the RFA, took mostly a defensive rather than a decisive and proactive approach. Rather than arguing for a five-year extension of the VEETC, they were mainly preoccupied with justifying why it should not be repealed immediately. Therefore, the approach taken by these interest groups towards lobbying for the RFS was characterized by broad support and a cohesive appearance; yet tight cohesion was not the case for the extension of the VEETC through to 2011.

6.3.3 Scientific Community

According to Kingdon, academics, scientists, researchers, and consultants are the most significant set of non-governmental actors after interest groups. While not obviously dominant in terms of sway on the agenda, the scientific community does play a crucial role in the production of ideas (Kingdon 1995: 53-54).

In the case of the VEETC, the major task was to clarify what caused the recent problem of rising corn and food prices, to which extent biofuel policies could be held accountable for such rises, and further, which implications existed for global food security. In addition, the scientific community debated and processed the issue of which role ethanol subsidies, such as the VEETC, played in determining the size of the corn ethanol industry, and which costs and benefits these ethanol policies have and had. Therefore, the issues that were given the most attention from the scientific community were also the points of dispute that proponent and oppositional interest groups were arguing about in reference to the elimination of the VEETC. However, since these subjects are highly complex and interlinked and because the scientific community generated quite an extensive amount of information in this respect, a comprehensive analysis of all scientific data is outside the range of this paper. Instead, the following paragraphs will demonstrate the most prominent studies and findings of the scientific community regarding these issues and what influence they had on the negotiation process of how to proceed with the VEETC. To achieve this, a brief evaluation of the above-mentioned key issues in connection to where the scientific community was particularly active, will be specified.

a) The Impact of Ethanol Incentives on Corn and Food Prices

On this key issue, the scientific community as well as proponent and groups oppositional to the elimination of the VEETC, clung steadfastly. The statements and conclusions of the scientific community to these questions often provided the basis for each party to argue for their interests. Interestingly, it was often the same studies that were used by proponent as well as oppositional interests to underpin their position, since the findings offered some margin of interpretation. Often cited studies by both proponent and oppositional interest groups were published by the Center for Agricultural and Rural Development (CARD) of the Iowa State University. In November 2010, when the debates about a further extension of the VEETC and the Import Tariff reached its peak, professor Bruce A. Babcock published related finding regarding the *Impact on Ethanol, Corn, and Livestock from Imminent U.S. Ethanol Policy Decisions (2010)*. The study concluded that dropping the VEETC and the Import Tariff

could drop the price of corn by about seven percent, that corn and feed prices would continue to be high because of the RFS (Babcock 2010b) and that “ethanol mandates, demand subsidies, and import barriers reduce the ability of world feed markets to cope with unexpected supply disruptions” (Babcock 2010a: b). Further, Babcock came to the conclusion that “if Congress decides that it does not make sense to stimulate demand when supply is short, then allowing the tax credit and import tariff to expire on schedule makes sense” (Babcock 2010a: 7). Another Iowa State University study that analyzed the connection between ethanol incentives and rising corn and food prices was *The Impact of Ethanol and Ethanol Subsidies on Corn Prices: Revisiting History* (2011). Interestingly, even though the study concluded that “ethanol certainly has contributed to higher corn prices. Just under half of the change in corn prices from 2004 to 2009 was caused by ethanol expansion” (Babcock and Fabiosa 2011: 9), the RFA cited the calculations for 2007 (RFA n.d.), in which “almost 80% of the observed rise in corn prices was due to factors other than ethanol” (Babcock and Fabiosa 2011: 9). However, even though the ethanol industry tried to portray these studies’ findings as far as they could for their own good, since the results clearly revealed that ethanol played a major role in higher corn prices, the Babcock studies were often and mostly cited by congressmen and interest groups that were pushing for the elimination of the VEETC. According to this research, the studies undertaken by the CARD of Iowa State University were the most cited scientific input in the debates over actions to be taken regarding the VEETC. An additional study, that was mainly cited by the RFA, is *The Effects of Ethanol on Texas Food and Feed* (2008), which was published by the Agricultural and Food Policy Center (AFPC) of the Texas A&M University and which “supports the hypothesis that corn prices have had little to do with rising food costs” (Anderson et al. 2008: 3). Another study that was preferably cited by the RFA was the World Bank report research working paper *Placing the 2006/08 Commodity Price Boom into Perspective* (2010), which determined “that the effect of biofuels on food prices has not been as large as originally thought, but that the use of commodities by financial investors (the so-called ‘financialization of commodities’) may have been partly responsible for the 2007/08 spike” (Baffes and Hanjotis 2010). Since rising corn and food prices were a global hot topic, there were many more studies, such as the study from the International Food Policy Research Institute (IFPRI) that found the “increased biofuel demand during the period, compared with previous historical rates of growth, [to be] estimated to have accounted for 30 percent of the increase in weighted average grain prices” (Rosegrant 2008: 2). However, studies also by the AFPC, the World Bank and the IFPRI existed, but as opposed to the CARD studies, they were not

frequently utilized as a source in debates for the VEETC and the Import Tariff.

b) The VEETC: Cost and Benefits of Ethanol Incentives

Another key question that the scientific community addressed was to what extent ethanol incentives, such as the RFS and the VEETC, determined the size of the corn ethanol industry and which costs and benefits they had and further will have. Also, in the matter of this key issue, CARD studies were the most prominent in the provision of answers. In *Costs and Benefits to Taxpayers, Consumers, and Producers from U.S. Ethanol Policies (2010)*, Babcock and co. make the following unmistakably clear: on the one hand, “taxpayers would save more than \$6 billion through elimination of the tax credit” (2010a: III), and whereas on the other hand, “the Elimination of the ethanol import tariff would have a small impact on the U.S. ethanol market because of strong Brazilian domestic growth” (2010a: 32).

Outlined later in *Impact on Ethanol, Corn, and Livestock from Imminent U.S. Ethanol Policy Decisions (2010)*, Babcock expressed clearly his opinion as a professional on the question of whether the VEETC and the Import Tariff should be extended:

A decision to let the tax credit expire may not be that difficult politically because the credit’s effects are so modest. It will cost taxpayers about \$10 for each additional gallon of ethanol that is stimulated by the tax credit. And there is no better time to let the import tariff expire because there is so little Brazilian ethanol available for export (Babcock 2010a: 7).

Also in 2011, with the VEETC still in place, CARD researchers, notably Bruce Babcock, confirmed once again that the elimination of the VEETC would have little impact on U.S. ethanol production

The capacity of the ethanol industry would have been almost equal to what it actually was in 2009 even if the blender tax credit had been abolished on December 31, 2004, and if no mandates had been adopted (Babcock and Fabiosa 2011: 9).

Implicitly, these findings imply that job losses within the ethanol industry would be insignificant, opposing one of the RFA’s main arguments, namely that a loss of the VEETC would cause a high amount of jobs to disappear (RFA 2010c).

However, it should not be surprising that results like the ones from the CARD studies were mainly used by actors pushing for elimination of the VEETC, since they provided a very suitable scientific underpinning for their argumentation in congressional debates and other lobbying activities.

c) Elimination of the VEETC: Impact on Gasoline Prices

An additional topic that was occasionally addressed was the question of whether the elimination of the VEETC would affect gasoline prices. This issue did not attract as much attention as the link between ethanol and food prices and its cost and benefits, however, studies and lobbying actions that addressed this question could be found. This issue was mostly addressed by congressmen and interest groups that favored a further extension of the VEETC and the Import Tariff. By stating the findings of an additional CARD study - *The Impact of Ethanol Production on US and Regional Gasoline Markets: An Update to May 2009 (2011)* - namely that “ethanol production reduced wholesale gasoline prices by \$0.25 per gallon on average” (Du and Hayes 2011) between 2010 and 2010 and that gasoline prices would rise by as much as 41 percent to 92 percent if ethanol production came to an immediate halt, ethanol proponents, such as the RFA and NCGA, argued that “without the VEETC, there's really no realistic expectation that gasoline retailers will continue offering the lower prices on the grades of fuel that contain more ethanol” (Scates 2011). However, since debates on the VEETC were dominated by the accusation that ethanol and its incentives were a major driver behind the rising corn and food prices as well as by the argument that the VEETC is a costly subsidy that has hardly had any positive effect on ethanol production, the counterargument that ethanol reduces wholesale gasoline and therefore the elimination of VEETC would cause higher gasoline prices, downright sank into itself and did not make big headlines during the debates on whether or not to eliminate or extend the 45 cents per gallon tax credit and the 54 cents per gallon Import Tariff. Only as average regular gasoline prices rose by 12 cents to \$3.3596 a gallon in a three-week period at the beginning of January 2012 (Powell 2012), did the VEETC's impact on gasoline prices make headlines.

However, in conclusion, especially the scientific community's contribution to assessing the link between ethanol incentives and its impact on higher corn and food prices as well as their costs and benefits, to a high degree, shaped the debates about the future of the VEETC. Although the scientific community was not directly involved in the debates, their findings were often used for arguing and underpinning the argumentation for and against the elimination of the VEETC and the Import Tariff with the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476). The most prominent and most visible contributor in generating ideas and providing answers regarding the need for action in matters of the ethanol incentives was the

Center for Agricultural and Rural Development (CARD) of the Iowa State University, most notably, professor Bruce A. Babcock. Due to the fact that several of their publications clearly indicated that ethanol incentives, such as the VEETC, are not a very cost effective instrument for stimulating the production of ethanol, and further showing that the argument of corn ethanol production being a not inconsiderable factor in increasing corn prices, is legitimate, the studies and their findings were present throughout the discussion in VEETC debates. Especially congressmen and the wide-ranging coalition of interest groups that were pushing for the Ethanol Subsidy and Tariff Repeal Act took advantage of the VEETC related findings of these studies and cited them in congressional debates, in letters to congressmen and in their efforts to create a public awareness of the downsides of the VEETC. Congressmen and oppositional interest groups that aimed for the contrary, tried to maintain by mostly citing studies that found ethanol as a marginal driver for corn prices, by citing the parts of the CARD studies that weakened the accusation of ethanol being a driver of increasing food prices and by arguing that ethanol diminishes wholesale gasoline and consequently the elimination of VEETC would cause increased gasoline prices.

A very analogous picture is bared when taking into account the whole policy stream.

Similar to the most prominent studies and findings of the scientific community, reports conducted by influential governmental organizations, such as the GAO and CBO, did portray the VEETC as a highly cost intensive subsidy mostly unnecessary today to guarantee demand for domestic ethanol production. Together with the CARD studies, the GAO and CBO reports greatly enlarged the basis of argumentation for the elimination of the VEETC.

Consequently, the massive merge of interest groups that actively participated in making the VEETC history and the great effort they put into this goal, combined with the CARD's, GAO's and the CBO's publications on the subject of ethanol incentives, created an unfavorable situation for a further extension of the VEETC. It pushed ethanol advocates into a defensive position in which they concentrated their effort on disapproving the arguments for eliminating the VEETC, but also had the consequence of lacking the impetus to take a proactive approach to forming coherent arguments and promoting the common goal of extending the ethanol import tariff and blenders tax credits.

6.4 Political Stream

This chapter will focus on the macro political conditions involved. According to Kingdon, the most powerful elements of the political stream are the national mood, interest group politics and turnover in the administrative and legislative branches. Since the political approach definitely had an influence on the likelihood of the VEETC's elimination prominence or obscurity, this chapter will contain the national mood and turnover in the administrative and legislative branches.

6.4.1 Political Conditions

a) National Mood

Not surprisingly, the prominent issues of rising corn, food and energy prices as well as the increasing federal budget deficit, not only concerned Congress, but also the general public. Therefore, the period between the 110th and 112th Congress was a time where rising food costs were a huge source of concern for consumers, which is clearly evidenced by various polls that were conducted during this time. According to an April 2008 conducted USA Today/Gallup poll, 46 percent of surveyed Americans indicated that rising food prices were causing financial hardship, whereas the percentage rose to 64 percent among respondents with a low-income, specifically, those earning less than \$30,000 a year (Jacobe 2008). The severe consequences of food price increases for many Americans between 2008 and 2011 were also highlighted in a 2011 conducted Gallup survey. In this period, "the percentage of Americans saying they did not have money for food in the previous 12 months more than doubled from 9% in 2008 to 19% in 2011" (Srinivasan and Ott 2011). Only a month later, an additional opinion poll conducted by the respected Gallup Institute revealed that Americans' capacity to afford food was nearing an all time three year low (Morales 2011). The percentage of those Americans not deficient in money for food in January 2008 fell from just below 84 percent to just below 82 percent in January 2011 and reached 79.8 percent in October 2011 (Morales 2011). Therefore, increasing discussions about surging food prices, causes and solutions were not only discussed in Congress, but also increasing awareness, frustration and pressure for solutions for the severe problem of skyrocketing food prices arose in civil society between the 110th and 112th Congress. However, Americans during this period were not only concerned and frustrated with increased spending on food, but also clearly perceived the non recovering high federal deficit as a precarious situation, as is evident from polls.

As shown by the problem stream, the 2008 financial crisis, together with increased spending on defense and social programs, pushed the annual federal budget deficit into a deep deficit of \$1.41 billion by 2009 and by 2011, a negative level of \$1.30 billion was reached. This was not only reflected in a multitude of congressional hearings, but also in surveys conducted on this matter. While searching for polls, it was noted that especially in 2011, surveys that addressed the high annual federal deficit were highly prevalent, which certainly had something to do with the fact that 2011 media and Congress was highly focused on this topic (Weiner 2012: 47; Jones 2011). To give an example, when President Obama, in April 2011, proposed his “comprehensive, balanced deficit reduction framework to cut spending” (OPS 2011), the Gallup Institute highlighted that 17 percent of Americans viewed the high federal deficit as the most crucial problem facing the country at the time, which was also the highest measure in any Gallup poll since January 1996 (Jones 2011a). However, Americans not only had judgment on the seriousness of budget rises, they also had a clear opinion on the causes of the phenomenon. Also, in an April conducted Gallup poll, 73 percent of surveyed Americans said that “spending too much money on unneeded or wasteful federal programs is to blame for the federal budget deficit” (Newport 2011). Therefore, as shown in a July 2011 conducted poll, “Americans' preferences for deficit reduction clearly favor spending cuts to tax increases” (Jones 2011b). Consequently, the national mood at the time of debating the future of the VEETC can clearly be described as a time where the general public expressed dissatisfaction regarding high food prices and the rising cost of living as well as their concerns about the government deficit and debt situation. It appears that especially in 2011, the general public and Congress were determined to undertake a large-scale cutback in governmental spending, during which war on spending for unneeded and wasteful programs was a main goal. This national mood, in combination with the VEETC, which was often cited and portrayed as an unnecessary, duplicative and costly federal governmental program, were not a good starting point for pushing for an additional extension in 2011.

b) Legislative and Administrative Turnover

However, the problems of rising corn and food prices, increasing federal budget deficit, a powerful merge of diverse interest groups and a national mood that was ripe for a large-scale cutback in governmental spending, were not the only influential factors at work in the successful outcome of the Senate vote on Amendment 476 (112th Congress – S.Amdt.476) to eliminate the VEETC and the Import Tariff. While the identified problems described in the problem stream, input from governmental actors, proponent interest groups and the scientific

community as well as the described national mood at the time of debates, all delivered a very plausible explanation for the emergence of numerous congressional attempts to repeal the various ethanol incentives, such as the VEETC and the Import Tariff, they do not provide a full explanation of why the Senate voted down the Ethanol Subsidy and Tariff Repeal Act as Amendment 436 (112th Congress –S.Amdt.436) by a clear margin of 40-59 on the 14th of June 2011, and then, only two days later, 40 Democrats with 33 Republicans voted for a super-majority of 72-27 in favor of eliminating the VEETC by passing the identical Amendment 476 (112th Congress –S.Amdt.476). In addition to the influential factors already described in the problem and policy stream, it became clear that there was a supplementing force at work that seemed to have created bipartisan support. How else can one explain the fact that only two days prior, the majority of the Democratic Senators voted against the Ethanol Subsidy and Tariff Repeal Act (112th Congress –S.Amdt.436)? For such turnaround in the vote for the Ethanol Subsidy and Tariff Repeal Act, it seems the legislative gymnastics or turnover of the highly influential and powerful advocacy and taxpayer group, Americans for Tax Reform (ATR), was a major factor. The ATR and its president, Grover Norquist, are well known for their flagship project, the *Taxpayer Protection Pledge*, in which legislators and candidates for office “solemnly bind themselves to oppose any and all tax increases” (ATR n.d.). Since in the 112th Congress, all but six of the 242 Republican members of the U.S. House of Representatives and all but seven of the 47 Republican members of the U.S. Senate signed the *Taxpayer Protection Pledge*, whether the repeal of the subsidy was a violation of the *Taxpayer Protection Pledge* or not became essential for the VEETC debate (ATR 2010). On the one hand, Grover Norquist and the ATR argued that repealing the tax credit represents a tax hike and therefore warned the Grand Old Party (GOP) that voting for the ethanol amendment would infringe on the group's ideologically strict Taxpayer Protection Pledge; on the other hand, Senator Coburn (R-OK) claimed that the VEETC was merely a relocation of money from taxpayers to a politically preferred industry, and therefore not a tax increase. Essentially, Republicans must forsake the Taxpayer Protection Pledge if they truly desire overcoming the seemingly out of control national debt (Kaminsky 2011). Although virtually every Republican member of the Senate had signed the pledge not to raise taxes, the described factors from the problem and policy stream as well as Senator Coburn's (R-OK) efforts to persuade his party colleagues of the necessity to end wasteful spending on the VEETC seemed to have contributed to the fact that in June 2011, Senator Coburn had the votes of 16 Republican senators - enough to get a vote on Ethanol Subsidy and Tariff Repeal Act as Amendment 436 (112th Congress –S.Amdt.436). However, these votes also clearly

showed that the ATR was losing hold on the GOP's tax policy, whereupon the ATR responded with a kind of legislative gymnastics or turnover. Even though Norquist and the ATR had savaged the Ethanol Subsidy and Tariff Repeal Act for months, by June 10th 2011, shortly before the vote on S.Amdt.436, Grover Norquist, on the behalf of the ATR, released a statement that "Taxpayer Protection Pledge signers should feel free to support the Coburn amendment provided [as long as] they also vote for the DeMint amendment" (ATR 2011).

Although Norquist tried to make sense of his decision, stating that the "Coburn amendment repeals the ethanol tax credit and tariff but in a way that raises net taxes and grows government spending"(ATR2011) and that the Senator DeMint's amendment (112th Congress –S.Amdt.394) to the Economic Development Revitalization Act (112th Congress –S.782) "fills in the gaps left by Senator Tom Coburn's ethanol amendment and overwhelms the Coburn tax increase with a more significant tax reduction" (ATR 2011), this move had considerable consequences for the ATR and on both votes (S.Amdt.436; S.Amdt.476) on the Ethanol Subsidy and Tariff Repeal Act. Not surprisingly, this sudden turnaround infuriated several Republican Congressmen in opposition of the Ethanol Subsidy and Tariff Repeal Act, such as Senator John Thune and Senator Chuck Grassley, yet this turnover noticeably relieved a number of Republicans apprehensive of the political consequences of possibly violating their promise of not to raise taxes (Raju 2011), which was clearly reflected in the fact that 34 of 47 Republicans Senators had voted in favor of the Ethanol Subsidy and Tariff Repeal Act as Amendment 436 (112th Congress –S.Amdt.436) on June 14th 2011. Even though the vote for S.Amdt.436 (112th Congress –S.Amdt.436) fell short by 40-59, because only six Democratic Senators voted in favor of S.Amdt.436 (112th Congress –S.Amdt.436), it emerged two days later that the turnover of the ATR also had an indirect effect on the vote on S.Amdt.476 (112th Congress –S.Amdt.476). Effectively, because the first vote on the Ethanol Subsidy and Tariff Repeal Act with the S.Amdt.436 (112th Congress –S.Amdt.436) clearly demonstrated a strong Republican backing of the VEETC, the Democrats used this to their advantage. In a strategic political move, only two days later, the Democratic Senators provided enough votes for the passing of S.Amdt.476 (112th Congress –S.Amdt.476) because by passing the Ethanol Subsidy and Tariff Repeal Act, they were given the chance to portray the Republican party as having gone on record as voting for the repeal of an industry subsidy, which is essentially a tax increase. Forty Democratic and 33 Republican Senators voted in favor of passing S.Amdt.476 (112th Congress –S.Amdt.476), opening the door for democrats to be able to accuse republicans of going against their fundamental stance of no tax increase and allowed democrats to further open discussion on ending subsidies on oil and gas. On the

surface, the voting appears to be a classic East Coast and West Coast against the Midwest voting pattern; however, upon further examination, it is clear that the above described dynamics influenced the final vote outcome on S.Amdt.476 (112th Congress –S.Amdt.476).

However, it is important to note that the growing issues described in the problem stream, together with the appearance of governmental actors and a strong coherent coalition of interest groups described in the policy stream in a time of a favorable national mood, deliver a very plausible explanation for the emergence of the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476) on the political agenda; yet it is the turnover of the ATR combined with strategic party political behavior on the behalf of the Democratic party that, based on current research, provides an additional powerful explanation for as to how the Ethanol Subsidy and Tariff Repeal Act finally reached agreement in the Senate with the passing of S.Amdt.476 (112th Congress –S.Amdt.476).

6.5 Coupling of the Streams: Policy Window and Policy Entrepreneurs

Further, it can be said that the problem stream was able to highlight several problems that were influential on the VEETC and that governmental officials and those actors not within the government were closely monitoring the situation. The policy stream exposed how governmental actors, interests groups and the scientific community were involved in debates over further congressional action on the VEETC and the Import Tariff. Additionally, the political stream demonstrated that the country was extremely open to the idea of cutting federal spending as well as the influence of legislative turnover, as was the case with the ATR. However, despite the common occurrence of each stream operating separately as a individual unit, the path of policy change is not as obvious and is considerably contingent on recurrent and intricate arrangements of a varied diversity of, at times indistinct, dynamics. The issue focus determined within the problem stream occurred whether or not a resolution was available. Within a political environment that is open to delivering solutions, potential answers can be present without suitable deliberation on the present issue. At times, the political atmosphere is merely not capable of being receptive to offering an appropriate solution to a given problem. However, it would seem that thanks to policy entrepreneurs, ethanol mandates stood out significantly from other issues, as all three streams combined efficiently into a single entity

a) The Successful Linking of Problems, Solutions and Favorable Political Conditions

As the assessment of the congressional hearings reveals, beginning in 2008, the problems of rising food prices and the rise of energy prices were increasingly linked to ethanol. Whereas the search of the 109th Congress (2005-2006) did not result in a single congressional record in which policymakers reported concerns regarding the fact that the ethanol production could have something to do with higher corn and food prices, and that a further expansion, stimulated by politically driven incentives, such as ethanol mandates or ethanol subsidies, could cause further price increases, that was not the case during the 110th Congress. Although in 2007 a few concerns were raised that the debated RFS2 with the Independence and Security Act of 2007 (110th Congress – P.L.140, 110th Congress – P.L.140, 109th Congress – H.R.6) could result in even higher food prices for U.S. consumers because it would have raised the RFS requirements by a factor of five (Herger, U.S 110th Congress 2007: 2589), in 2008, after signing the Independence and Security Act of 2007 into Public Law 140 (110th Congress – P.L.140, 110th Congress – P.L.140, 109th Congress – H.R.6), the concerns issued in Congress by policymakers about the linkage of biofuels and rising corn and food prices in the U.S. as well as around the world, came thick and fast. For example, Senator Jim Inhofe made the following clear:

American families and the international community continue to suffer from these misguided policies, and Washington has to take the first step to begin to address these problems. I think we know what the problem is right now. We have mandated certain things to take place in terms of our fuels, it has had a result of increasing prices of food, but it has another unintended consequence; that is, it is diverting the use of corn to go to fuel as opposed to food (Inhofe, U.S 110th Congress 2008: 3469).

As the examination of the congressional records of the 110th Congress further unveils, not only did ethanol mandates come under the criticism of various policymakers, also the subsidizing of ethanol with the VEETC came increasingly under criticism in the context of rising agricultural commodity prices. One good example is Senator Judd Gregg's statement regarding the 2008 Farm Bill (U.S. 110th Congress – P.L.246, U.S. 110th Congress – H.R.4520), which extended the VEETC for another three years to December 31st 2010:

[The United States has] the huge effort to subsidize ethanol, which has driven up dramatically the price of corn and has the effect of basically creating an international incident in the area of food availability. We are hearing from numerous countries around the world that are finding they have shortages of other commodities because the American subsidization of ethanol has

perverted the marketplace relative to the production of corn. That certainly is inappropriate. So the policy of this bill is not only an attack on the American consumer, it is basically bad policy for the world population just trying to make it through and avoid hunger (Gregg, U.S 110th Congress 2008: 4745).

At the same time, ethanol proponents tried to link the problem of rising corn and food prices to rising energy prices:

It's been very interesting for me to hear them say they're blaming higher food prices on the production of ethanol and biodiesel in agricultural America, which is actually a new value added market for our farmers. [...]The real culprit for rising food prices is rising oil prices. Our world is facing a crisis precipitated by the greater competition for dwindling supplies of world energy that has caused all the prices of basic goods to skyrocket (Kaptur, U.S 110th Congress 2008: 2326).

They also argued that the rising corn price only accounted for a portion of rising food prices:

To place the blame for food inflation on biofuels and the rising prices of certain commodities is simply misguided. According to the U.S. Department of Agriculture, costs of food inputs only account for a fraction of food prices. Specifically, labor, packaging, transportation, advertising, and profits account for 68 cents of every dollar a consumer spends on food (Thune, U.S 110th Congress 2008: 1657).

This back and forth, whether ethanol incentives or the rising energy prices were and are a major factor behind rising food prices, continued during the 111th and 112th Congress (Crapo, U.S 111th Congress 2009b: 2417; Speier, U.S 111th Congress 2009: 4528; Grassley, U.S 111th Congress 2009: 3601; Grassley, U.S 112th Congress 2011: 2678), but not to the same extent as in the 110th Congress. This, among other causes, can be explained by the fact that with the lasting high federal deficit, ethanol proponents were given an additional problem they could link to ethanol incentives, such as the VEETC. It is clearly shown that especially in the 112th Congress, the VEETC was often linked to the high federal deficit and the savings such a repeal would bring (Feinstein U.S 112th Congress 2011b: 3854; Coburn, U.S 112th Congress 2011b: 1969):

At a time when our federal government is facing a massive deficit and spiraling debt, we need to take a hard look at how we spend our taxpayer dollars. These subsidies are expensive, and studies have shown them to have dramatic impacts on our federal budget as well as on the cost of corn feed used by chicken farmers, including those in Delaware. This year alone, VEETC will cost taxpayers \$6 billion. We just can't afford to maintain this duplicative

and wasteful subsidy (Coons, U.S 111th Congress 2011b: 3879)

Further, the statement from Senator Coons reveals that many congressmen that pushed for the repeal of the VEETC often stated the problems of rising food prices and high federal deficit in combination which each other and offered the repeal of the VEETC as a suitable path and good step that would have a positive effect on these problems (Flake, U.S 111th Congress 2010: 8525; Collins, 112th Congress 2011: 3869). Since the problem of rising food prices and the increasing federal deficit had already existed since 2008, yet efforts to link the VEETC to these problems were not found until the starting of 2010, it seems that these congressman jumped at the opportunity to attach the VEETC to such problems so as to match a problem with their already decided upon solution; namely, adopting a policy that would have eliminated the VEETC. In addition, the review of the congressional hearing shows that ethanol proponents not only linked the VEETC successfully to problems and demonstrated its elimination as a suitable solution, they also successfully underpinned their line of argumentation by linking it with input from actors described in the policy stream. For example, Senator Coburn stated that even the NPRA, whose members were one of the main beneficiaries of the VEETC, supported his efforts to end the Volumetric Ethanol Excise Tax Credit, saying that it was not needed (Coburn U.S 112th Congress 2011b: 1968-1969). Senator Collins mentioned that CARD “estimated that a 1-year extension of the ethanol subsidy and tariff would lead to only 427 additional direct domestic jobs at a cost of almost \$6 billion, or roughly \$14 million of taxpayer money per job” (Collins, 112th Congress 2011: 3869). In addition, these congressmen pushing for the elimination of the VEETC not only underpinned their arguments with input from the scientific community, they also strengthened their line of argumentation by highlighting that even governmental organizations, such as the GAO and CBO, reported that, on the one hand, the VEETC has high price tag in combination with ethanol mandates and, on the other hand, is to a large extent unneeded today to stimulate ethanol production (Coburn, U.S 112th Congress 2011b: 1967-1969; Cardin, U.S 112th Congress 2011: 3857). However, these were not the only efforts in effect: Congressmen pushing for the elimination of the VEETC and the Import Tariff also made use of the wide support of interest groups. In various speeches, they made clear that they had the support of a variety of environmental groups, free-market groups, budget hawks, religious organizations and even groups from the farm and food industry (Coburn, U.S 112th Congress 2011c: 3724; Feinstein U.S 112th Congress 2011b: 3853). Furthermore, these congressmen not only extensively coupled the salient points described in the problem and policy stream during hearings, the same approach can also be found in their press releases and the

various information material they provided in addition to their proposals to eliminate the VEETC and the Import Tariff. Also, it should be noted that not only were the congressmen very active in coupling especially the problem with policy stream, but the same approach can be found when analyzing the wealth of information material that was published by the multitude of interest groups that were backing them.

Therefore, the conclusions are that the intensive linking of the specific problems described in the problem stream with the VEETC, underpinning it with input from governmental actors, interest groups and the scientific communities findings and at the same time, offering policy that would have eliminated the VEETC and the Import Tariff as a solution that would have a positive effect on these problems, created a very unfavorable situation for ethanol advocates to further push for policy that would have extended the VEETC and the Import Tariff. It not only pressed ethanol advocates into a self-justifying position in which they focused their determination on disapproving opinions for eradicating the VEETC, but also had the result of creation a dynamic in which the motivation to take a preemptive tactic to creating comprehensible arguments and endorsing the mutual objective of lengthening the ethanol import tariff and blenders tax credits, was missing. However, even though, as shown by the analysis of the research material, congressmen and interest groups that backed for the end of the VEETC and the Import Tariff were already active in coupling of the problem and policy stream by 2010 and had definitely a very contractive effect on passing a five year extension of the VEETC in 2010, these two streams in place were not enough to end a 30-year old subsidy in the such a short time that was left when the first policies to eliminate the VEETC came up by the end of 2010. What was still required in the Senate in order to pass the Ethanol Subsidy and Tariff Repeal Act with Amendment 476 (112th Congress – S.Amdt.476) in Senate - the first policy that would have ended the VEETC and the Import Tariff as will be shown in the next chapter - was a powerful window of opportunity resulting from the political stream.

b) The Policy Window of the Ethanol Subsidy and Tariff Repeal Act

According to the MS model, coupling of the three streams transpires with the assistance of policy entrepreneurs and, crucially, by the opening of a *policy window*. Such windows either open in reaction to variations in the political stream or by the presence of new problems, for example, when indicators or focusing events—such as crises or disasters – grab the amplified attention of policymakers. As already shown in the previous chapter, by 2011,

congressmen that had policies at hand, which aimed for the elimination of the VEETC and the Import Tariff, started to couple the problem and the policy stream in 2010 and increased in linking the problems from the problem stream with various input from the numerous actors described in the policy stream.

Therefore, while the problems described in the problem stream had already been in existence since 2008, coupling of the problem and policy stream did not begin until 2010. Even so, until the 14th of June 2011, not a single policy proposal that aimed for the repeal of ethanol subsidies was voted on; not in the House or the Senate. In the case of passing the first policy that would have eliminated the VEETC, the policy window can not have been opened in the problem stream. As shown above, all three streams converged only as Senator Coburn successfully fulfilled his role as a policy entrepreneur by persuading a few of his Republican colleagues of the necessity to end wasteful spending on the VEETC. As shown in the political stream, this caused a chain reaction that turned the tide for the Ethanol Subsidy and Tariff Repeal Act. The legislative turnover of the ATR must have opened a powerful window of opportunity since it gave the green light for Republican Senators to vote for the Ethanol Subsidy and Tariff Repeal Act with Senate Amendment 436 (112th Congress – S.Amdt.436) and which further moved the Democrats, resulting from strategic political motives, to further contribute their votes for the final vote on the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.Amdt.476). Therefore, it can be concluded that in the case of the Ethanol Subsidy and Tariff Repeal Act, the policy window originated out of the political stream. Even though the problem stream had a strong influence on the appearance of policy proposals pushing for the elimination the VEETC and the Import Tariff, while the policy stream offered a breeding ground for congressmen and interest groups pushing for the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476), it was legislative turnover that pushed the already rolling stone over the edge.

c) Policy Entrepreneurs

As already described, a problem must be posed by a policy entrepreneur when the political circumstances are advantageous for association with an existing solution that can be accomplished with minimal amount of effort on the behalf of the decision makers. Being that the role of policy entrepreneurs was described in detail in chapter 2.2.1.5 and chapter 5.5, an exhaustive definition will be not be given once more. Thus, the following list is made up of the most distinguishable actors who spoke at congressional hearings when the topic of ethanol

related to the VEETC was dominant.

- Governmental Actors: Tom Coburn (R-OK)

Tom Coburn is a United States Senator from Oklahoma and a member of the Republican Party. Coburn was clearly the most energetic actor in opposition of the VEETC and backed numerous bills that called for the repeal of the VEETC. He introduced the Amendment 220 (112th Congress – S.Amdt.220) to the SBIR/STTR Reauthorization Act of 2011 (112th Congress –S.493), which would have eliminated the tax credit subsidy of ethanol, and the Volumetric Ethanol Excise Tax Credit Repeal Act (U.S. 112th Congress – S.520), which called for the immediate repeal of the income and excise tax credits for ethanol. Since these numerous pieces of legislations that he himself sponsored, never made it to floor action, Senator Coburn further continued to push through Senator Feinstein's Ethanol Subsidy and Tariff Repeal Act by additionally introducing identical bills with Senate Bill 1057 (U.S. 112th Congress – S.1057) and Senate Amendment 436 (112th Congress – S.Amdt.436), also titled the Ethanol Subsidy and Tariff Repeal Act. Even though Senator Coburn did not introduce the Ethanol Subsidy and Tariff Repeal Act in the first place, he was the policy entrepreneur that made sure that the Republican portion of the Senate took a stand on tax breaks for the ethanol industry. Senator Coburn was also the most visible actor in coupling the streams. In most of his appearances regarding the elimination of the VEETC, he linked the problems with the various actors' inputs from the policy stream and he was the catalyst for the ATR's legislative turnover, since he assured the backing of his Republican colleagues by portraying the VEETC as a transfer of money from taxpayers to the politically favored ethanol industry, rather than being a tax increase.

- Governmental Actors: Dianne Feinstein (D-CA)

Dianne Feinstein, a Democratic U.S. Senator from California, was an adamant proponent of the VEETC and associated ethanol tax credits. She, along with colleagues, was responsible for introducing Senate Bill 530 (112th Congress –S.530), which would have eliminated the ethanol tax credit only for corn-based ethanol. Additionally, Feinstein, together with eleven additional co-sponsors, initially introduced the Ethanol Subsidy and Tariff Repeal Act in Senate Bill 871 (U.S. 112th Congress – S.871). Since Senator Feinstein's and Senator Coburn's efforts did not result in the intended repeal of the VEETC and the Import Tariff, Senator Feinstein further offered Amendment 476 (112th Congress – S.Amdt.476) to the Economic Revitalization Act of 2011 (112th Congress –S.782), eventually resulting in the

elimination of the VEETC. To bolster her points against the VEETC, along with Senator Coburn, Feinstein utilized various research results, especially from the CBO, to especially push home the point that ethanol tax credits cost voters money. Further, she pointed to the rising price of corn and food and indicated such increases to be a result of the VEETC.

- Governmental Actors: Jeff Bingaman (D-NM)

Jeff Bingaman is a former Democratic U.S. Senator from New Mexico, who was actually known as a longtime supporter of biofuels and who was chairman of the powerful Senate Energy and Natural Resources Committee until 2013. Despite his track record of supporting biofuels, he was strongly against the VEETC due to its lack of cost effectiveness. Even though his actions were clearly not as influential in pushing for the VEETC as Senator Coburn's and Feinstein's effort, the fact that he used the CRS's findings as well as findings of the CBO to argue for a push to cut the cost exhaustive biofuel subsidies, was for sure not an advantage for ethanol advocates pushing for an additional extension of the VEETC and the Import tariff. Senator Bingaman also published a report that outlined the cost for taxpayers of biofuel tax credits and was clear in that he believed that biofuel incentives, while not an entirely bad idea, needed to be brought into perspective and recalibrated so as not to overburden taxpayers.

- Leonard Lance (R-NJ)

Leonard Lance is the U.S. Representative for New Jersey's 7th congressional district and was the main outspoken advocate within the House of Representatives arguing for a repeal of the VEETC. Lance was open in his belief that federal ethanol subsidies were a waste of taxpayers' money. In acknowledging the unified force calling for a repeal of the VEETC, Lance repeatedly called for open debate on the House floor on the topic of ethanol and federal policy. Further, he and was an active member of bipartisan legislation directed at ending ethanol subsidies. He introduced House Bill 1188 (U.S. 112th Congress – H.R.1188) - the Repeal Ethanol Subsidies Today Act – in an attempt to end the ethanol blenders tax credit; an effort, which was in coalition with a wide range of entities, such as the Taxpayers for Common Sense. Further, Lance cited results of research by the CBO as valid argumentation for an end to ethanol subsidies. While Lance was never successful in passing such legislation, which would have repealed ethanol supportive policies, in the House, he was a big player in bringing awareness to the topic.

In brief, when it comes to the broad and wide-ranging case of ethanol and the VEETC, the list of influential policy entrepreneurs could be lengthened. However, without question, the actors described above were highly involved, motivated and unrelenting in their goals and, repeatedly pushed for their agendas. As specifically related to Kingdon, within the problem stream, they effectively drew attention to problems – such as rising food and con prices – which they could associate with ethanol and the VEETC, and in the policy stream they effectively prepared their argument in favor of their chosen solution, that is, the elimination of the VEETC. Such actors utilized the scientific community as a tool in the persuasion of fellow actors and the public, and the interpretation of various research results were based on the necessary goal. In addition, it could be shown that policy entrepreneurs also have a not to be underestimated influence on the political stream, as the case of Senator Coburn shows.

It should have been brought to light that without the effort of Senator Coburn in convincing his Republican colleagues that the VEETC was really a transfer of money from taxpayers to the politically favored ethanol industry, rather than being a tax increase, ATR's legislative turnover and the following chain reaction from the Republicans as well as from the Democrats, would have not taken place. Overall, the involved policy entrepreneurs were very intentional and forceful in pushing forward their agenda and utilized all the given tools to make effective arguments within the policy stream.

6.6 Conclusions – Ethanol Subsidy and Tariff Repeal Act

Now that the problem, policy and political stream were examined separately and the appearance of a policy window and the coupling of these stream have been assessed, this chapter will provide a coordinated whole picture as to which conditions were interpreted as problems, how the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476) was offered as a solution and tied to these problems, and the political conditions that seemed to be a major factor for passing the Ethanol Subsidy and Tariff Repeal Act with Amendment 476 (112th Congress – S.Amdt.476).

The problem stream revealed that the emergence of rising corn and food prices and the increasing federal budget deficit created a favorable setting for the appearance of policy proposals that aimed for the elimination of the VEETC and the Import Tariff, and offered a

perfect breeding ground for arguing in favor of these proposals. However, since food prices and the increasing federal deficit had already appeared in 2008, but were barely connected with ethanol policy before 2010, this research concludes that these problems certainly had an influence on the appearance of the congressional effort to eliminate the VEETC, but also served more as a perfect basis of information and argumentation for adopting a policy that would have eliminated the VEETC. As chapter 6.5 clearly showed, substantially, all Congressional efforts that were aimed at pushing the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476) somehow linked the VEETC to these problems and demonstrated its elimination as a fitting route and positive stride that would have a constructive effect on both problems. Therefore, these problems gave congressmen and interest groups, which aimed for the elimination of the VEETC, the opportunity to demonstrate the VEETC as a policy that exacerbated these problems and to argue for its end by stating that such elimination would tackle both problems, without any negative side effects.

However, it is also important to mention that not only ethanol opponents made use of problems to push for their common goal; also ethanol advocates used such points of issue to their advantage. Since congressmen and interest groups that aimed for the elimination of the VEETC argued that ethanol incentives were a major factor of the rise in corn and food prices, policy actors that aimed for the opposite used the problem of rising energy prizes to invalidate these accusations. Nevertheless, as the discussions regarding the RFS, the VEETC and the Import Tariff indicate, the ethanol industry and its backers were not very successful in separating these ethanol policies from the problem of rising corn and food prices as well as from the increasing federal deficit.

Further, the policy stream exposed that especially the appearance of governmental actors in the form of reports and studies conducted regarding the VEETC expanded the foundation of argumentation for the eradication of the VEETC for congressmen and interest groups.

The GAO and CBO reports concluding that the VEETC was a highly cost intensive subsidy that was mostly not needed to secure demand for domestic ethanol production and therefore should be revised or even eliminated, made it much easier for policy actors to further push for policy ending the VEETC and the Import Tariff. However, the policy stream also revealed that not only the governmental actors' inputs had a positive impact on pushing forward the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476), also the importance of the

contribution of the scientific community must not be neglected. As well, CARD studies - the most visible scientific studies in the debates over actions to be taken regarding the VEETC - in coming to the conclusions that the VEETC was not a very cost efficient route for inciting the production of ethanol, that the argument of corn ethanol production being a not inconsiderable factor in increasing corn prices was valid, and that the elimination of the VEETC would not cause thousands of job losses - as argued by the ethanol industry, resulted in the VEETC being further pushed into a tight corner. In addition, it could be shown that the establishment of an enormous powerful interest group coalition with an overwhelming number of over 100 members from organizations across the political spectrum was an additional pillar for the successful elimination of the VEETC in the Senate. On the one hand, the establishment of this enormous merge was very influential on congressional actions taken regarding the VEETC because of its size and also because it largely involved food producers that were splitting from the farm lobby as surging grain prices led to a diverging of their interest from the fuel and corn groups. On the other hand, this coalition was very successful in coupling problems and input from the policy stream in a very uniform appearance. Conversely, the policy stream could indicate that when it came to the ethanol industry's interest groups and members, there could be no arguing about coherence. Since, for example, the RFA, ACE and Growth Energy did not always follow suit in the course of action to fight for the VEETC - especially Growth Energy had a quite different idea of how to further offer support for extending the VEETC - some amount of division was created between the representatives of the ethanol industry. Further, it could be shown that the small group of oppositional interest groups disagreed on how to proceed with the VEETC, which weakened the position of ethanol advocates to avert policy aimed at the elimination of the VEETC, not to mention its extension. Further, in breaking ranks from other members, major ethanol producers, such as Valero and POET LLC, were not contributing to an ethanol related positive environment. However, not only did the ethanol industry indirectly contribute to the fact that the VEETC and the Import Tariff were not extended throughout 2011, the main beneficiaries of such legislation also had major influence on the congressional actions taken regarding the VEETC, as they distanced themselves from the VEETC when they repeatedly came under crossfire from Congress for receiving billions of subsidies while simultaneously recording high profits.

However, even though the factors described in the problem and the policy stream clearly offer a very plausible explanation for the emergence of numerous congressional attempts to repeal the various ethanol incentives, such as the VEETC and the Import Tariff, they do not

provide a full explanation as to why not a single policy proposal aiming for the repeal of ethanol subsidies was not voted on until the 14th of June 2011. Further, these factors from the problem and policy stream do not give a consistent explanation as to why the Senate voted against this proposal by a large margin of 40-59 on June 14th 2011, and only two days later, 40 Democrats and 33 Republicans voted 72-27 in favor of eliminating the VEETC by passing the identical Amendment 476 (112th Congress –S.Amdt.476). This is where the developments in the political stream come into play.

The political stream revealed, on the one hand, that Congress and the general public were resolute in implementing a significant reduction in governmental spending, especially in 2011, during which war on spending for unnecessary and inefficient programs was a leading objective. On the other hand, it was especially a legislative change in opinion by the ATR on June 2011, which resulted in a clear turning point in the case of the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476). The turnover was triggered by Senator Coburn's substantial and persistent pressure on the dispute as to whether the elimination of the VEETC could be seen as a tax increase or not. These efforts seemed to have come to fruition, since Colburn was able to receive a few votes from his Republican colleagues, even though they had signed the ATR pledge not to raise taxes.

The above outlined streams resulted in perfect political staging for pushing the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476) onto the governmental and decision agenda, and forged agreement on the proposed solution of eliminating the VEETC and the Import Tariff. Due to the fact that the described problems had a particular prominence in Congress, the problem stream had, among other factors, the effect that policy makers were tasked with the search for solutions that would have at least weakened and confronted these problems. Even though these problems had complex causes and could have been tackled by various approaches, starting in 2010, it was the Congressional actions to be taken regarding the VEETC that reached prominence on the political agenda as a feasible solution. This can be explained, on the one hand, by the fact that Congressmen and interest groups, that targeted elimination of the VEETC as their goal, had the opportunity to establish the VEETC as a policy that worsened these problems and to reason for its elimination by stating that it would solve both problems, without having any undesirable side effects. On the other hand,

explanation comes from the factors described in the policy stream. The appearance of governmental and scientific actors, together with the establishment of an enormous powerful merge of interest groups, established the abandoning of the VEETC as a reasonable solution by reporting that the VEETC was a highly cost exhaustive subsidy mostly needless to assure demand for domestic ethanol production. Moreover, the elimination of the VEETC was pushed as a feasible solution onto the governmental and decision agenda. However, even though the problem and the policy stream were main reasons for the idea of the abolition of the VEETC and the Import Tariff to continue climbing further on the governmental and decision agenda as reasonable political action to be taken, the decisive force on Congressional agreement on the elimination of the VEETC and the Import Tariff, was found in the political stream. Despite the problem and policy stream already being quite intensively coupled in 2010 by various policy actors, it also appeared that these two streams in place were not enough to let the VEETC expire in 2010. Additionally, it made clear, that in the case of the elimination of the VEETC and the Import Tariff, the coupling of problems to a solution, the existence of a powerful coalition of interest groups and the input from governmental actors and the scientific community, were not enough to push forward final agreement on the propositioned solution of eliminating the VEETC and the Import Tariff. Even though the problem and policy stream as well as its coupling were very influential factors in the agenda setting process of eliminating the VEETC, to even more push the decision making process, the opening of a policy window was needed. As could be shown, only as Senator Coburn effectively achieved his position as a policy entrepreneur by influencing a few of his Republican colleagues of the essential need to end the wasteful spending on the VEETC, did all three streams converge, resulting in the passing of the Ethanol Subsidy and Tariff Repeal Act with Amendment 476 (112th Congress – S.Amdt.476).

The policy window - ensuing from Senator Coburn's triggered legislative turnover of the opinion of the ATR - turned the tide for the Ethanol Subsidy and Tariff Repeal Act at a dizzying speed. Being that the legislative turnover gave the thumbs up to Republican Senators to vote for the Ethanol Subsidy and Tariff Repeal Act with Senate Amendment 436 (112th Congress – S.Amdt.436) and also that Democrats were using the Republicans' vote – which was in favor of eliminating the VEETC - as a strategic political move, the policy window out of the political stream turned the tide for the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476) from being neglected by a clear margin of 40-59 on the June 14th 2011, to being passed by a super super-majority of 72-27 in a immensely short period of time.

7. Conclusions

7.1 Answering the Research Questions

Being that this study was initiated and designed based on a main research question and consequent sub research questions as well as due to the fact that its aim was to adequately address and answer these questions, the final chapter will explicitly address findings that should clearly answer the research questions. Even though through the conclusions of both policy process analyses, some light should have already been shed on these questions, this chapter will state explicitly how answers to these questions can be formulated. Since primary research questions and secondary research questions overlap to some extent, the following chapters will address them in bundles.

Primary Research Question:

How did the EPO Act of 2005 (109th Congress – P.L.58, 109th Congress - H.R.6), as specifically related to ethanol in connection with the RFS, manage to achieve placement on the political agenda and reach agreement?

Secondary Research Questions:

What factors caused ethanol's rise to agenda status and accounted for the decision to assure the continued growth of ethanol usage with the EPO Act of 2005 and consequently the decision to enact the Renewable Fuel Standard (which originated with the EPO Act of 2005)?

Given the various conditions that existed as related to the RFS discussed, which conditions were defined as problems by policy makers?

The RFS within the EPO Act of 2005 managed to achieve placement on the political agenda and reached agreement through several factors:

- 1.) It could be shown that the emergence and prominence of several problems as well as there growing perception as being interconnected and as smaller components of one big problem, opened the door wide open for ethanol to present itself as a feasible one shot solution. At the time of debating the RFS, the United States was facing several problems that created a favorable setting for its appearance on the governmental and decision agenda as well as for its final enactment. These problems included

environmental problems - such as deteriorating air quality in highly populated urban areas, the uncovering of MTBE in ground waters and reservoirs, and the increased knowledge and debate related to global warming - agricultural issues, such as diminishing farm income and increasing costs of federal farm-subsidy programs - and energy security issues - such as the rising fuel demand and instability of the oil market, and energy shortages, precisely around 2000.

- 2.) Even though there was not a scientific consensus regarding ethanol's impact on the rural economy, the energy security problem, public health, air quality, the environment and regarding its net energy value, being that governmental actors, such as the USDA and the EPA, as well as powerful interest groups, such as the RFA and the NCGA, were very active in promoting ethanol as a sweeping solution for such problems, the lack of scientific agreement regarding ethanol's potential as a feasible solution to these problems was seemingly unnoticed.
- 3.) Furthermore, it was revealed that whereas the idea of the RFS was backed in a very coherent manner by very influential interest groups, such as the RFA and NCGA as well as other supplementary high profile interest groups, the oppositional force, mainly the API and NPRA and a few environmental groups, were not as visible and seemed to not be as united and organized in fighting against the implementation of ethanol mandates.
- 4.) In addition to the already limited amount of coherence of the oppositional force, added fragmentation took place when several lawsuits appeared against the oil industry in relation to the cleanup of MTBE in ground water. As a result, various MTBE producers and the API agreed to support ethanol interests groups in return for their backing of the "safe harbor provision", which caused a fracture in the relationship between the fully backed and tremendously outspoken MTBE producers and the rest of the oil and gas industry.
- 5.) Also, the 2000 and 2004 election gained momentum for ethanol, since the topic of ethanol was a prevailing component of significant campaign promises, especially in Corn Belt States.

6.) Evidence was further presented that many of the issues that proponents of ethanol attempted to convey in connection to ethanol being an answer to current issues and problems, resonated significantly with the mainstream public during the time of debates and enactment of a RFS in the EPAAct of 2005.

7.) It could also be presented that starting in 2002 and increasing up to 2005, especially the appearance of specific problems and there increased linking with each other created a powerful policy window, whereupon ethanol advocates started to attach ethanol as a potential alternative and as partial solution to several of these problems. Being that the national mood also seemed to be ripe for renewable energy and that some MTBE producers responded with a kind of legislative switching of opinion soon after lawsuits were filed against them, it could be shown that all three streams were coupled and in place as Congress debated the EPAAct of 2005.

Moving forward, it was clearly identified that without specific political actors drawing attention in Congress to specific problems that they could attach the RFS as a solution to, the RFS's placement on the political agenda as well as its passing in Congress would have been to a large extent, less likely, which brings us to the next research question.

Secondary Research Questions:

Which actors contributed actively and what interests did they have in section 1502 (RFS) of the EPAAct of 2005?

Was the EPAAct of 2005 a outcome of forceful lobbying and insistence from ethanol interest groups and corn-state politicians?

As shown in chapter 5.5, with a few exemptions being representatives of interest groups and governmental agencies, the most active actors pushing the RFS into congress were politicians from Corn Belt States from both the Republican and the Democratic Party. It was Senator Charles Grassley (R-IA) and Tom Harkin (D-IA) from Iowa, Senator Tom Daschle (D-SD) from South Dakota, Senator Chuck Hagel from Nebraska (R-NE) and Senator Richard Lugar (R-IN) from Indiana, who played decisive roles in coupling the problems, solutions and political mood when the window of opportunity was open to such ideas. In addition to the mentioned corn state politicians, there were two key individuals from the ethanol and farm lobby at work. RFA's president and CEO, Bob Dinneen, as well as NCGA's President, Leon

Corzine, both efficiently primed both the public as well as the policy community for their chosen well-rounded answer to current problems: corn ethanol. The RFS received further support from representatives of governmental agencies. Within Congress as well as in the media, Carol Browner, in her position as administrator of the EPA, and Keith Collins, which held the position of Chief economist at the USDA, clearly maintained the positive sentiment of the EPA and USDA towards the RFS.

When looking at the interests that motivated these actors to take a stand for the RFS, ethanol lobbyists and politicians from corn growing states were exceptionally defined and definite in the positive implications of ethanol production and distribution as specified by a RFS.

However, it was not that clear why governmental agencies, such as the USDA and EPA, would choose a side, yet it is no surprise that their support of Ethanol was highly pursued by ethanol lobbyists and politicians, as such governmental actors are considered as reliable and extremely persuasive. A potential basis for the participation of EPA and USDA representatives as policy entrepreneurs could be as a result of the regulatory positions of their organizations and the ensuing inferred participation they would have with any new biofuel policies.

Being that it became apparent that the RFS was mainly backed in a very coherent and effective manner by corn state politicians as well as by very influential interest groups, such as the RFA and NCGA, one can definitely say that the implementation of the RFS within the EPAct of 2005 was, among other factors, the result of forceful lobbying from ethanol interest groups and corn-state politicians.

Primary Research Question:

How did the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871, 112th Congress – S.Amdt.476) manage to achieve placement on the political agenda and reach agreement?

Given the various conditions that existed as related to the Ethanol Subsidy and Tariff Repeal Act, which conditions were defined as problems by policy makers?

The turning tide for ethanol subsidies can be explained through several factors.

- 1.) As was in the case of the RFS, it all began with the appearance of specific problems. The appearance on the scene of rising corn and food prices and the growing federal

budget deficit definitely facilitated the creation of a advantageous situation for the emergence of policy proposals that targeted the elimination of the VEETC and the Import Tariff. Nevertheless, what is more significant is that these problems created an ideal situational setting for reasoning in favor of these proposals. As chapter 6.5 explained in detail, all Congressional exertions that were intended to push the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.871; 112th Congress – S.1057; 112th Congress – S.Amdt.436; 112th Congress – S.Amdt.476) somehow associated the VEETC with these negative issues and seemingly determined that its dismissal would be an ideal route that would have a productive and positive influence on both problems. Thus, these negative issues presented congressmen and interest groups, which targeted success in the eradication of the VEETC, the chance to establish the VEETC as a policy that worsened these problems and to reason for its termination by affirming that such a policy end would be capable of positively confronting both problems, without any unwanted repercussions.

- 2.) Moreover, it could be shown that especially governmental actors and interest groups had a major role in pushing the Ethanol Subsidy and Tariff Repeal Act onto the political agenda, supporting it in reaching agreement in the Senate. The GAO and CBO reports concluded that the VEETC was an exceedingly cost ineffective subsidy that was essentially not required in order to make sure a demand for domestic ethanol production existed. Therefore, the overwhelming conclusion was that it should be modified or even disregarded. Additionally, it was made much simpler for Congressmen and interest groups to even more back policy, which would have ended the VEETC and the Import Tariff, when referencing the noticeable CARD studies, which determined that the VEETC was not a very cost effective method for furthering and maintaining the production of ethanol.
- 3.) It could be exhibited that specifically the problem of skyrocketing corn and food prices led to the establishment of a new set of interest group coalitions. Through the merge of food producers - that were splitting from the farm lobby - environmental groups, budget hawks, free-market groups, and religious organizations into a powerful interest group alliance with over 100 members, new political funding and pressures was in place. However, this alliance was not only very influential in pushing the Ethanol Subsidy and Tariff Repeal Act onto the political agenda because of its numerous

members from across the political spectrum. Also, this coalition was a major factor because they appeared as a unified front and coupled problems and input from the policy stream in a very coherent manner.

- 4.) By contrast, it was demonstrated that when it came to the ethanol industry's interest groups and members, disagreement and a lack of unity played a key role. The small alliance of the ethanol industry's interest groups did not always maintain the same stance on all points when it came to fighting for the existence of the VEETC - especially Growth Energy had a highly varying opinion regarding how to additionally provide backing for an extension of the VEETC, which aiding in destabilizing the position of ethanol advocates in their aim to prevent policy with the goal of eliminating the VEETC, and of course its extension. Also, it could be revealed that there was breaking ranks from these interest groups members, for example, major ethanol producers, such as Valero and POET LLC, removed themselves from the once united front of ethanol. In a clear and well-defined manner, they made clear that from an ethanol manufacturing stand point, the VEETC was almost irrelevant because it was not ethanol plants who were really receiving the credits, it was the refiners, which did not contribute to an ethanol related positive environment.
- 5.) Further, it could be shown that the main beneficiaries of the VEETC, the refiners, also had great influence on the congressional actions taken in reaction to the VEETC because they dissociated themselves from the VEETC after being recurrently negatively focused on by Congress for receiving billions of subsidies while concurrently posting high profits.
- 6.) Nevertheless, even though these factors clearly offered a very conceivable rationalization for the appearance of many congressional efforts to repeal the various ethanol incentives, such as the VEETC and the Import Tariff, they did not deliver a full rationalization as to why a single policy proposal targeting a repeal of ethanol subsidies was not voted on until June 14th 2011. As well, these dynamics within the problem and policy stream do not give a stable clarification of why the Senate voted against this proposal by a large margin of 40-59 on June 14th 2011, and only two days later, 40 Democrats and 33 Republicans voted 72-27 in favor of eliminating the VEETC by passing the identical Amendment 476 (112th Congress –S.Amdt.476). This

is where the developments in the political stream come into play. Prompted by Senator Coburn's significant and determined coaxing on the disagreement as to whether the abolition of VEETC could be considered as a tax increase, and resulting in his success of being able to obtain a few votes from the Republicans - even though they had signed the ATR pledge not to raise taxes - the legislative change in opinion on the ATR appears to have instigated a political domino effect that generated favorable circumstances for the Ethanol Subsidy and Tariff Repeal Act. The ATR's legislative back and forth made way for a powerful window of opportunity since it essentially provided permission for Republican Senators to vote for the Ethanol Subsidy and Tariff Repeal Act with Senate Amendment 436 (112th Congress – S.Amdt.436) and which further motivated the Democrats, stemming from strategic political intentions, to additionally add their votes to the final vote on the Ethanol Subsidy and Tariff Repeal Act (112th Congress – S.Amdt.476).

Also, in the case of the Ethanol Subsidy and Tariff Repeal Act, it was clearly acknowledged that without particular political actors, who attached the VEETC to specific problems in Congress, and without the effort they put in to convincing policy makers that there was no better time to eliminate the VEETC and the Import Tariff than the present, the Ethanol Subsidy and Tariff Repeal Act's position on the political agenda as well as its passing in Senate, would have been, most likely, not probable, which funnels us into the next secondary research question.

Secondary Research Questions:

Which actors contributed actively in the Ethanol Subsidy and Tariff Repeal Act?

In the Case of the Ethanol Subsidy and Tariff Repeal Act, a vast amount of contributing actors can be named. Due to the fact that essentially every spokesman or president of opponent interest groups was certainly making his or her contribution to the case of the Ethanol Subsidy and Tariff Repeal Act (which is however not in the context of this work), this study identified to a large extent the most active policy entrepreneurs in Congress. In the case of the Ethanol Subsidy and Tariff Repeal Act, four key actors in particular are as follows: Senator Dianne Feinstein (D-CA) - who already made clear during debates for the RFS that she strongly opposed it and saw it as a greedy and misguided policy - Senator Coburn - who could be identified as the policy actor who pulled most of the strings behind the

Ethanol Subsidy and Tariff Repeal Act, but who was not visible when debating the RFS - and Senator Jeff Bingaman - who was actually known as a longtime advocate of ethanol and the RFS, but changed his stance on ethanol when it came to the VEETC on the grounds that it lacked cost effectiveness, and House Representative Leonard Lance, who despite his repeated effort to push the repeal of ethanol subsidies in the House, was a big player in bringing awareness to the topic. While all four Congressmen were decisively involved in pushing the repeal of ethanol subsidies, in the case of the Ethanol Subsidy and Tariff Repeal Act, it was especially Senator Tom Coburn's persistence in convincing his Republican colleagues that the VEETC was a relocation of money from taxpayers to the politically favored ethanol industry and consequently, in times of high federal budget deficit, it was the right time to eliminate such a non effective and expensive biofuel incentive, that played a key role

Secondary Research Questions:

If so, why did ethanol advocates fail to gather the support necessary to push through a new tax break for the U.S. production of corn-based ethanol and why were they unable to block the Ethanol Subsidy and Tariff Repeal Act in Senate, which sent a strong message that the era of big taxpayer support for corn ethanol was coming to a conclusion by the end of 2011?

As already partly shown in the previously answered research questions, the fail of the ethanol industry, after 2011, to keep all three centerpieces of federal ethanol policy - the RFS, the Ethanol Import Tariff as well as the VEETC - can be traced back through multilateral factors.

However, it also could be revealed that some considerations were more important than others. According to the current research, there are four pillars for the reason why ethanol advocates lost Congressional support regarding two of their main incentives: First, it was the emergence of problems, such as the rise of corn and food prices, as well as the increasing federal deficit, that formed the foundation for the ethanol industries losing hold on Congress.

This problem of surging grain prices led to the second cornerstone of ethanol advocates being unable to block the Ethanol Subsidy and Tariff Repeal Act in Senate, particularly the splitting of the farm lobby. Being that the feed industry and food producers' interests conflicted greatly from those of the fuel and corn groups - which was not the case when debating the RFS - the ethanol industry, beginning in 2008, experienced quite a loss of support. Conversely, the interest group coalitions that engaged the VEETC and the Import Tariff gained enormous influence and power due to their numerous members and due to the

fact that they originated from across many political spheres. The third main pillar is that whereas the ethanol industry as well as its members took a very coherent approach in pushing for the RFS, there was not much coherence when repealing the Ethanol Subsidy and Tariff Repeal Act as well in their effort to extend the VEETC for an additional five years. On the one hand, it could be shown that the main interest groups from the ethanol industry did not always cooperate in pushing for the VEETC and, on the other hand, it could be revealed, that there was also some discrepancies within the ethanol industry itself. Being that some major players in the ethanol industry confessed that the elimination of the VEETC, with the RFS still intact, would not have a major impact on domestic ethanol production, and that it was the refiners who are really capturing the credits, the push of the ethanol industry against policy aimed at the elimination of the VEETC as well as the backing of policy that aimed for the extension of the VEETC, was further weakened. The fourth pillar of the ethanol industry losing stance on the VEETC is the fact that various reports and studies conducted by governmental organizations as well as by reputable research institutes concluded that the VEETC would not trigger thousands of job losses - as claimed by the ethanol industry and that it is as a pointless, duplicative and financially exorbitant federal government program. However, the ethanol industry's loss of control over the VEETC became even more pronounced with the developments that took place after the Ethanol Subsidy and Tariff Repeal Act passed in the Senate. Even though the Ethanol Subsidy and Tariff Repeal Act never made it through the House due to a lack of active policy entrepreneurs - like Senator Coburn, who would have made sure that there was a vote on the same proposal in the House - the Senate vote clearly demonstrated that a major part of Congress was ready to let the established corn-based ethanol industry stand as a matured entity. Unmistakably clear were the final and defining hours of the VEETC and the Import Tariff Act, when 73 bipartisan House members urged Congressional leaders to "resist calls to expand or create new ethanol subsidies in the eleventh hour" (TCS 2011). Therefore, it can be said that even though the House was not ready to immediately abandon a 30 year old subsidy in such a short time, with the Senate wanting to have it immediately repealed and with enough backing in the House to not extend the VEETC and the Import Tariff in the last minute, by the end of 2011, it was clear that the days of the VEETC and the Import Tariff were numbered. The fact, that the ethanol industry lost hold on Congress regarding the VEETC and the Import Tariff did not leave their lobbyists unaffected. To limit the consequences and to keep face in the case of the VEETC, starting in the last quarter of 2011, the ethanol lobbyist strategy regarding the VEETC once more took a 180-degree spin. Whereas most of the ethanol

lobbyists, beginning in 2010 until mid 2011, were aiming for a five year extension of an unmodified VEETC and from mid 2011 were supporting a five year extension of a reformed VEETC, at the end of 2011, after it became more and more clear that the VEETC was not to be extended, these ethanol advocates followed the strategy of keeping face. While in 2010 until mid 2011, these ethanol lobbyists clearly put effort into pushing an additional extension of the VEETC and arguing that its absence would have very negative consequences, costing thousands of jobs and pushing the industry into a desperate situation (RFA 2010c), by the end of 2011, most of these ethanol representatives suddenly issued statements outlining that “corn growers and the ethanol industry have long agreed to let [the VEETC] expire and have since stopped fighting for its renewal” (Niemeyer 2011). Further, they stated that by letting the VEETC go, they were “helping to reduce the federal budget deficit [and they are] doing its part to address America’s challenges, [whereas] the well-established and highly profitable oil industry is still receiving huge subsidies and refusing to give up any” (Dinneen 2012). To summarize, even though the industry had spent around \$30 million in only two years (Connectas 2013) in lobbying to keep their federal incentives, this research has shown that developments in the problem stream as well as in the policy stream made the ethanol industry’s success in blocking the Ethanol Subsidy and Tariff Repeal Act and pushing for an additional extension of the VEETC, very unlikely. However, by displaying the repeal of the VEETC as their own achievement, which clearly was not the case, they were able to benefit from the debates on ethanol incentives because it deflected attention from the fact that the ethanol industry still had the RFS that provides them with a certain future market at volumes that surpassed what they had produced in the past and enabled them to present the argument that they had paid their dues and that it was the oil industry that had not; thus the argument was to cut incentives for the oil industry next. However, even though the VEETC was no longer valid legislation, the strong opposition aimed corn ethanol, environmental groups, the food and the oil industry as well as its supporting Congressmen, were clear in the fact that with the RFS still in place, the elimination of the VEETC was only a partial legislative success. Therefore, the Congressional battle over ethanol incentives, specifically the RFS, waged on in 2012 and 2013.

7.2 The Utility Of Kingdon's MS Model and Suggestions For Future Research

Kingdon's Multiple Streams model provided an effective structure in which to explore and methodically analyze the forces at work in the rise of ethanol onto agenda status with the EPAct of 2005, and then the subsequent introduction of the Ethanol Subsidy and Tariff Repeal Act. Within this political and agenda process, various wide ranging and unique factors can come across as convoluted and not easily associable, yet each of these factors played a crucial role in the examined circumstances. The streams provided by Kingdon and the act of coupling allowed for the filtering out and associating of contributing factors. Being able to separate variables into various streams, and then the ensuing locating of points of coupling, greatly clarified the pattern of decisions with correlating points. Essentially, Kingdon helped us to formulate the 'how' and 'why' in a clear and organized way, adding structure to a daunting set up circumstances and events.

Lastly, while this study, within the organizing structure of the MS model, serves as a strong foundation for further analysis of the heated battle over the RFS in Congress in 2012 and 2013, limitations were present. In order to supplement the current research structure, which only utilized primary sources, such as congressional hearings and discussions, and specific reports and numerous documents issued by federal agencies, as well as secondary sources, such as books, reliable internet sources, special interest group published material as well as journals articles, the use of expert interviews to shed light on the invisible actors behind the agenda setting would be helpful in further broadening the understanding of all contributing dynamics. Specifically, added value from interviews with those in the scientific community, who are not obviously loud spoken in debates, yet contribute to data used in debates, would be a valuable information pool for additional elucidation on the subject.

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Education

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10/2010-vsl. 12/2013	Master of Arts in Political Science Institute of Political Science, University of Vienna Focus: Environmental Politics and Policies / International Politics Thesis: The 20 th century roller coaster case of the United States’ ethanol policy: <i>an analysis of the contributing factors in the conceptualization and decision making process of the Energy Policy Act of 2005 and the Ethanol Subsidy Repeal Act of 2011.</i>
10/2006-07/2002	Bachelor in Philosophy in Sociology Institute of Sociology, University of Vienna Focus: Environmental Sociology Thesis: Das Konzept der Nachhaltigen Entwicklung und ihre Verbindung mit der Umweltproblematik in den Ländern des Südens. <i>Die Implikation eines neuen Entwicklungsverständnisses und ihre ökologische Komponente.</i>
09/1997-07/2002	Higher Technical College of Braunau Automation and Measurement Section
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Working Experience

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Other

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