

**A scenario for policy process and future policies in the  
EU in the fields of energy generation and transport  
concerning energy.**



Willibrord L. Kruijsen

# A scenario for policy process and future policies in the EU in the fields of energy generation and transport concerning energy.

Willibrord L. Kruijsen

**Master Thesis European Studies**

**Graduation Committee:**

**University Supervisor (chairman):**

**University Supervisor:**

**University Supervisor:**

**PNO Supervisor:**

**Date:**

**Prof. dr. N. S. Groenendijk**

**dr. M. J. Arentsen**

**Prof. dr. B. Young**

**dr. ir. A. van den Kroonenberg**

**2007-12-12**

**University of Twente**

**School of Management & Governance**

**Westfälische Wilhelms-Universität Münster**

**Department of Political Science**

**Abstract:**

This research has intended to answer the next question “*What will be the new EU policy and the subsequent incentives to achieve the goals set in the field of energy generation and transport concerning energy?*” This research developed and applied two models for explaining the European Union policy process and procedure. These models make a distinction between the different levels of playing fields in the EU and the different roles of the EU institution. Data has been collected by means of interviews with members of the European commission, European parliament, different stakeholder, and by means of secondary sources. The major findings of this thesis are that (1) the EU will make policy to ensure a better working emission trading scheme by means of new EU policies and legislation., (2) the EU intends to promote and stimulate new energy technology for generation of energy and for transport and is developing new incentive based support schemes for this purpose the usage of new techniques will be on the short notice strongly promoted with positive incentives. However, in the long run they will be replaced by negative incentives. Third, the EU will focus more on R&D and bottlenecks.

**Key words:**

European Union, policy process, energy, environment, incentives

## **Preface**

No party, local pub, office or university canteen can be walked by without overhearing the discussions about the environment. Discussions regarding the environment go hand in hand with discussions about energy. The only thing people agree on is that ‘something’ has to happen for future generations. Governmental organizations are the natural bodies to ensure sound solutions for the problems faced.

At present the European Union is still pursuing a solution for the energy problem. Also the route to this solution is unclear. This creates great uncertainty with customers and companies. Therefore I have chosen the EU policy process for the energy problem as the basis for my Master in European Studies.

One of the goals I set for my thesis was to do it in cooperation with a company to ensure that there would be practical use for it. I want to thank PNO Consultants for the opportunity to reach this goal. Their professional environment and good working atmosphere were of great support.

I want to thank all the members of my graduation committee for their efforts to look at different insights and solutions, to keep on focusing on the practicality of my Master thesis, and with their assistance feedback and motivational words.

Special thanks go to all who have supported me writing my Master thesis.

Enschede, December 2007

Willibrord Kruijsen

## Table of Contents

CHAPTER 1. INTRODUCTION .....	7
1.1 Introduction .....	7
1.2 PNO Consultants .....	8
1.3 The research question .....	9
1.4 Methods .....	12
1.5 Background information .....	14
1.6 Incentives .....	15
1.7 Outline thesis .....	16
CHAPTER 2. POLICY PROCESS .....	17
2.1 The Policy Process procedure .....	17
2.2 The EU policy process model .....	19
2.3 First level stakeholders .....	21
2.4 Second level stakeholders .....	23
2.5 Practicality versus desirability .....	25
2.6 Inertia .....	26
2.7 The formulation of the goals .....	27
2.8 Conclusion .....	27
CHAPTER 3. THE PRESENT SUPPORT AND INCENTIVE PROGRAMMES .....	29
3.1 The present incentive programmes .....	29
3.2 The present support programmes .....	30
3.3 The opinion on the present programmes .....	34
3.4 Conclusion .....	36
CHAPTER 4. FUTURE POLICY IN ENERGY GENERATION .....	38
4.1 The future goals .....	38
4.2 The future policy .....	41
4.3 The future incentives .....	44
4.4 Conclusion .....	45
CHAPTER 5. FUTURE POLICY IN TRANSPORT .....	48
5.1 The future goals .....	48
5.2 The future policy .....	50
5.3 The future incentives .....	52
5.4 Conclusion .....	54
CHAPTER 6. CONCLUSION .....	56
6.1 Discussion .....	56
6.2 Reflection .....	59
6.3 Recommendations .....	60
REFERENCES .....	62
APPENDIX 1 .....	66
APPENDIX 2 .....	67
APPENDIX 3 .....	68
APPENDIX 4 .....	69

## Summary:

The EU and the world are facing tremendous problems concerning environment and energy. The EU citizens demand that the EU will take action. The EU is trying to take a leading role to solve or relieve these problems.

The first problem focussed on is the uncertainty regarding future EU policy in the field of energy generation and transport concerning energy. The second problem is a consequence of the first problem. Because the future is unknown it is also unknown which incentives will be used to achieve the future energy policy ambitions. Deducted from these problems is the research question: *What will be the new EU policy and the subsequent incentives to achieve the goals set in the field energy generation and transport concerning energy?*

Of the research question, four sub research questions have been derived which will be in more detail discussed below. The primary data is in the form of structured and unstructured interviews. Structured interviews have been conducted on a group of over 20 people which are: representatives of the parties of the European Parliament, the European Commission, and lobby and interest groups. The secondary data in this thesis consists of: academic papers, PNO Consultants files, eurostat, databases, historic documents, EU documents (green, white papers and other documents), and political party documents.

Chapter 2 describes the first sub research question: *What will be the policy process for EU policies in the field of energy generation and transport concerning energy?* This research question has analysed the most interesting theories in this area. These theories are combined in two models. Model 1: *policy process procedure*, describes by detail the different stages a policy has to go through before it can be adopted. The EU Model 2: *policy process model*, describes the different influences during the policy procedure. This model especially focuses on the importance of the interest and lobby groups and three different intervening components: practicality versus reliability, inertia, goal setting.

In Chapter 3 there has been dealt with the second research question: *What are the present EU policies and incentives programmes in the field of energy generation and transport concerning energy?* This research question analyses the most interesting incentive and support programme's,

active in the EU. The most interesting incentive programs are: the green certificate and feed-in tariffs, both should improve the production of renewable energy. The most interesting support programs being: CIP, FP7, LIFE + and Marco Polo. The overall opinions of the stakeholders were: first, FP7 was highly appreciated by all stakeholders. Second, most of the second level stakeholders were sceptic concerning the Life programme. Most of the second level stakeholders expressed that Marco polo programme should focussed co-modality and more competition instead of a modality-shift. The limited feedback made it impossible to make a balanced judgement on CIP. Taken all the opinions in consideration, it can be concluded that there is much demand for improvement of the present EU programmes.

Chapter 4 describes the third sub research: *What will be the most likely future EU policy scenario in the field of energy generation?* This question analyses the most likely scenario concerning the goals the policy and the incentives in the field of energy generation. The most likely scenario for the EU goals are: 20% energy savings, 20% reduction of CO<sub>2</sub>, and 20% of energy from renewable energy sources by 2020, the EU will should take a more leading role in the world on this field, and the EU will ensure a better working internal market. The most likely scenario for the policy mixture will be: that legislation will be the basis of policies. Incentives will be used for smooth and quick adoption of legislation and to reach specific goals. The policies will become more predictable and consistent in time, without loss of its dynamics.

The most likely scenario for the policies is. *First*, there will be a policy in the form of legislation to encourage improvement of grid access and removal of barriers. *Second*, the EU will make policies in the form of legislation to make the emission trading scheme better working. *Third*, the EU will make policies which will further promote R&D through positive incentives and demonstration projects. *Fourth*, positive incentives in the form of grants will in the short term raised to reach the 20%, 20%, and 20% goals by 2020. *Fifth*, the EU will slowly introduce a more overall CO<sub>2</sub> taxation system. The introduction of this system will be a lengthy process. There is not much change of a real enlargement of the EU budget for the energy generation industry.

Chapter 5 describes the fourth sub question: *What will be the most likely future EU policy scenario in the field of transport concerning energy?* The fourth sub research question analyses the most likely scenario concerning the goals the policy and the incentives in the field of

transport concerning energy. The most likely scenario for the goals is: the 20%, 20%, and 20% goals by 2020 will be maintained, there will be goals set to minimize exhaustion per car, the EU will take a more leading role in the world, the EU will reset its goals for biofuels, and the EU will set goals to improve co-modality. The most likely scenario for the policy mixture will be: that legislation will be the basis of policies. The policies will become more predictable and consistent in time, without loss of its dynamics. The most likely scenario for the policies will is: *first*, the EU will make policies to promote more infrastructural projects. *Second*, the EU will set policies, which set maximum CO2 emission per car-producer, *Third*, the EU will build on the policies for biofuels. *Fourth*, EU norms on other emission besides CO2 emissions will be set through legislation. *Fifth*, the EU will continue policies which stimulate R&D. *Sixth*, the CO2 emission taxation which will only become partly introduced however overtime it will become more and more put in practice. There not much change of a real enlargement of the EU budget for the transport industry.

In Chapter 6 there has been an integral conclusion extracted. In this conclusion there is extensively come back to the answers on the different. In addition it discusses some remarks, recommendation, and a reflection. In the reflection the choices concerning the methods have been discussed. The remarks are made concerning the consumer behaviour, the knowledge of the European Parliament of the EU Programme's. Follow up study have been proposed concerning consumer behaviour, the opinion of the Council, and the influences of the knowledge on the programmes of the Members of the European Parliament.

# CHAPTER 1. INTRODUCTION

## 1.1 Introduction

According to the most recent Euro barometer opinion survey (05-03-2007), an overwhelming majority of the inhabitants of the European Union (hereafter, EU) are concerned about climate change. Moreover, European citizens are aware of energy production and consumption impacts on the environment as well as global warming. In addition, there is a vast majority of EU inhabitants, who feel that the best level to deal with these issues would be the EU level (European Commission: 2007e). Dealing with these issues on the EU level implicates that either the Council of Ministers (hereafter, the Council), the European Parliament (hereafter, EP), or the European Commission (hereafter, the Commission) should act first.

Energy production and consumption are not sustainable and this becomes more and more a problem for three reasons: First: conventional, fossil based, energy resources run the risk of exhaustion, which puts pressure on the energy prices (economical sustainability<sup>1</sup>). Second, production and consumption of fossil based conventional energy sources burden the environment (environment sustainability). Third, the EU is very depending of the rest of the world for its energy resources (dependency) (Council of the European Union: 2007). In short, by sustainability is meant: *The ability to meet present needs without compromising those of future generations* (WCED: 1987).

Two sectors namely energy generation and transport are especially relevant when considering sustainability of energy en environment. Both sectors use huge amounts of fossil fuels resulting in substantive CO<sub>2</sub> emissions. Energy generation therefore is one of the key areas for energy policies in the EU. Among others, the EU wants to increase the share of renewable energy resources, but thus far the increase of renewable energy resources stays behind the EU ambition (European Commission: 2007f)

---

<sup>1</sup> One of the problems with the economical sustainability of energy is that in January 1998 a Crude Oil Domestic First Purchase Price per barrel was 8,57 dollar. In the year 2006, the price rose to well over 60 dollars a barrel (Energy Information Administration: <http://www.eia.doe.gov/>, retrieved on 2007-05-03).



Another highly interesting area when energy is concerned is the transport industry because; first transport causes a substantial part of the total amount of CO<sub>2</sub> emission. Second, transport is a still growing industry. Third, the transport industry has made considerable progress in the last decade concerning the reduction of the pollution emission and energy savings.

With the help of a sustainable energy policy the European Commission wants to guide the EU into a sustainable future; *“The European Union is facing unprecedented energy challenges resulting from increased import dependency, concerns over supplies of fossil fuels worldwide and a clearly discernable climate change. The EU can and must lead the way in reducing energy inefficiency, using all available policy tools at all different levels of government and society... The need for a strengthened policy aimed at more energy efficient consumption and production patterns was underlined in the Commission Green Paper on “A European Strategy for Sustainable, Competitive and Secure Energy”.*” (European Commission: 2006f).

This ambition implies major challenges but also uncertainties for industries and consumers how this ambition will affect their technology, energy consumption and activities. This study tries to overcome this lack of knowledge by providing knowledge on the most likely policy scenarios in the field of energy generation and transport concerning energy. Furthermore, this research will take an in-depth look at the expectation of the European commission, the European Parliament and other involved, to find out what are the most likely policy scenarios.

## 1.2 PNO Consultants

PNO Consultants is the constituent of this research. PNO Consultants is a consultancy company specialized supporting organizations and companies in applying for governmental grants. With the head office located in the Netherlands, PNO Consultants B.V. employs over 350 staff members working in ten different locations, generating an annual turnover well over € 20 million.<sup>2</sup> PNO is widely acknowledged as the European leading grants consultancy company. PNO Consultants looks pro-actively for grant schemes, which fit its costumers organization best,

---

<sup>2</sup> PNO consultants: [www.pnoconsultants.co.uk](http://www.pnoconsultants.co.uk), retrieved on 2007-05-07.

and advises them how to optimize the use of these grant opportunities. A key aspect of their service is tracking and tracing constant information on developments in public grants.<sup>3</sup>

The main interest of PNO in this research is to learn more about the EU policies and how these policies are developed in the fields of energy generation and transport concerning energy. In addition, they are interested in what would be the most likely scenario for the new EU policies in the field of energy generation and transport concerning energy. PNO is in particular interested in the incentives part of these policies. This information enables PNO to improve the service to its clients.

### 1.3 The research question

In the first part of this paragraph the problem statement will be discussed. After the problem statement, the research question will be formulated and discussed in-depth. To make this study more transparent the research question will be divided in four sub-research questions.

#### **Problem statement:**

There are three big problems in the area of energy for the EU: limited resources of “conventional” energy sources, import dependency, and CO<sub>2</sub> emission. However, these problems are not the focus of this research. This research takes these circumstances for granted; the research will focus on the problem of the uncertainty how these problems will be dealt with by the EU in the future.

This research focuses on two different problems. The first problem concerns the uncertainty regarding future EU policy in the field of energy generation and transport concerning energy. The root of this problem is that both companies and consumers have difficulties with long term plans when the future policies are unknown. The second problem is a consequence of the first problem. Because the future is unknown it is also unknown which incentives will be used to achieve the future energy policy ambitions.

It is essential for companies and customers to make balanced decisions, based on sufficient information, with uncertainties reduced to a minimum.

---

<sup>3</sup> PNO consultants: [www.pnoconsultants.nl](http://www.pnoconsultants.nl), retrieved on 2007-05-07.

The research question:

*What will be the new EU policy and the subsequent incentives to achieve the goals set in the field of energy generation and transport concerning energy?*

In this research different phases of the policy will be discussed this gives a global idea on how EU policies as a whole are constructed. This insight makes it possible to understand what implications it will have on the policy if one of the variables would change.

The main reason this research focuses on the fields energy generation and transport concerning energy is because, first these two fields have considerable relatedness and common characteristics. In addition, with these two fields it might be possible to make a deduction / generalization for the energy policy field.

The choice to focus on future EU policies in the field of energy generation has been made because this field can make a significant contribution to relieve, or even solve the CO2 emission problems. This could be done if the renewable energy sources would have a larger share. An increase of the share in renewable energy sources could be achieved through legislation, incentives and or information. Firstly, there are new policies to be expected in the near future. Secondly, it is assumed that this field will have a big impact on the society. Thirdly, this field is highly interesting for PNO consultants.

The focus on future EU policies in the field of transport concerning energy has been because the transport sector is responsible for a large share of the CO2 emission and energy consumption. Secondly, transport has made great improvements in the last decade and is still improving in reducing the energy consumption. Thirdly, the transport sector is essential for the modern European society. Fourthly, transport is a still growing industry and is expected to keep on growing in the future. Fifthly, the transport sector could be a highly interesting client base for PNO consultants in the future.

### **Sub research questions:**

In order to formulate an unbiased answer on the research question there are four sub-research questions formulated. Answering of these sub research questions will provide the answer to the overall research question.

- (1) *What will be the policy process for EU policies in the field of energy generation and transport concerning energy?*

The process a policy has to go through before it is adopted is a lengthy one. In many cases, the policy process determines the success of this new policy. During this process, many obstacles have to be overcome, and concessions have to be made, because coalitions have to be formed, especially in the EU (Fiorino: 1988). This policy process track itself influences the final version of the new policy.

The answer to this first sub research question will point out four things: the procedure, the process, the stakeholders, and the barriers in the field. Knowing and understanding the process of new policymaking in general, means one would be able to understand what the effects are of the different forces on a new policy. The different forces working on the policy process cause differences between the original and actual policy put in practice (Richardson: 2006).

- (2) *What are the present EU policies and incentive programmes in the field of energy generation and transport concerning energy?*

This question should give a clear picture on how the policies and their incentives in the field of energy generation and transport concerning energy are currently arranged. This will include mapping the different programmes that are currently active in the EU. Moreover, the opinions of the stakeholders on these programmes will be expressed. These opinions will also give information on the likelihood of continuation of the present programmes in the future and the demand for policies.

- (3) *What will be the most likely future EU policy scenario in the field of energy generation?*

The models given in Chapter 2 will be used to answer this question. This question discusses the opinions on goals, policies and incentives in the field of energy generation. These opinions are of the different stakeholders active in this field. Moreover, it will describe a scenario of the future policy in the field of energy generation. The interviews with the different stakeholders should give a good indication what might be a likely scenario for the future policy in the field of energy generation.

- (4) *What will be the most likely future EU policy scenario in the field of transport concerning energy?*

The fourth research question will analyse future developments in the field of transport concerning energy in a similar way as described for energy generation.

## 1.4 Methods

In research, data collection is one of the most important steps. It decides the quality of the study and it is a reflection of the researcher's ability. In this process, the sensibility of the researcher is important. It is also related to the problem of validity and reliability of the case study (Cooper & Schindler: 2003).

The main research question: *“What will be the new EU policy and the subsequent incentives to achieve the goals set in the field of energy generation and transport concerning energy?”* has been chosen for the purpose of this study. This question will be answered with the aid of primary and secondary data; these will be more in-depth discussed in paragraph 1.4.1. Moreover, the way the data will be used; will be more in-depth discussed for each sub research questions in paragraph 1.4.2.

### **1.4.1 Primary and secondary data**

In a primary data collection, the data is collected by or for the researcher. In a secondary data collection, the researcher uses data from other researches. One of the major advantages of primary data is that the information gathered is recent (Baarda and Goede de: 1998). Especially in such a turbulent environment, as the fields of this research, this is very important. The primary data used in this thesis are generated by structured and unstructured interviews. The structured interviews were open question based, and standardized, to ensure validity and reliability. (Cooper & Schindler: 2003) The interviews were mostly face-to-face interviews instead of telephone interviews, because face-to-face interviews in general ensure a higher level and generate more information. (Cooper & Schindler: 2003) The primary data will consist of interviews with consultants of PNO Consultants, lobby groups, the Commission, associations, interest groups, and political parties. Because of the nature of this study and the set time frame not all stakeholders are represented, but the participants in the interviews have been selected in such way

that a balanced reflection of all stakeholders is ensured. An overview of the different people and organizations who participated in this research is given in appendix 1. Exclusively representatives of the Dutch European Parliaments parties have been interviewed, because of the easy access and their assumed willingness to participate in the projects. In addition if they would cooperate, all the big pan European political parties would be represented. Interest and lobby groups have been carefully selected to participate in the interviews to cover the broad range of their objectives.

Besides primary data, secondary data has been used. The quality of secondary data is not guaranteed (Baarda and Goede de: 1998). To overcome the problems inaccuracies with the secondary data there has been made use of a systematic system to judge the secondary data. This judgement has been based on three points: first the origin of the used data (bases) has been checked. Second, the background and common acceptance of the authors have been investigated. Third, the used arguments and the methodologies have been evaluated. Efforts have been made to use only recently published articles and books. The secondary data in this thesis consists of: academic papers, PNO Consultants files, eurostat data, databases, historic documents, EU documents (green, white papers and other documents), and political party documents.

#### **1.4.2 Methods for the sub research questions**

The majority of the data to answer the first sub research question is secondary data. This secondary data consists of academic papers, PNO Consultants files, eurostat, databases, historic documents, and EU documents. The secondary data have been used to construct a theoretical framework, which should give more insight in the policy process and procedures. The primary data, being structured and unstructured interviews, have been used to identify which stakeholders were most important.

To answer the second sub research question a combination of primary and secondary data have been used. The primary data consisted of structured and unstructured interviews and the secondary data consisted of academic papers and papers by the EU. The primary data has been used to look at the most important programs and the leading opinions on them. The secondary data has been used to describe the different programs and the opinion of the Commission.

To answer the third and fourth sub research question mainly primary data has been used. Questions three and four are identical, besides that they look at different fields. The primary data

consisted of structured and unstructured interviews with the different stakeholders in this field. This source of data has been used to get the opinions on key goals, policies and incentives for the future of the EU.

## 1.5 Background information

This paragraph will give in-depth information on the two fields of research. This part is especially meant for those readers less these specific fields. Those readers familiar with the fields of research can omit this paragraph and continue with paragraph 1.6.

### **1.5.1 Information on the field of energy generation**

The overall energy mix of the EU is still for 60 % dominated by oil and gas, which means that both economy and society are still largely depending on these fossil fuels.<sup>4</sup>The EU has a far from good position in oil; it has a low amount of reserves and has a high production level. Therefore, it will run out of oil. For oil the EU is very dependent on the Middle Eastern countries and the former Soviet States. With gas, it is a bit less dramatic: in this case, the EU has a better reserve position. For gas the EU is highly dependent on the former Soviet States. Not only the EU has such figures, like many other countries around the world (See appendix 2).<sup>5</sup>

Looking at the electricity mix of the EU it is clearly visible that together gas and oil have a strong position. However, there have been some changes in the last decade; the importance of gas has grown. Secondly, the share of electricity from renewable energy is still growing; the strongest growth is shown by electricity generated by windmills. Nevertheless, the share of electricity from renewable energy sources is just a fraction of the total demand. An overview on the performances of the EU members concerning the renewable energy sources in electricity generation overtime is given in appendix 3.

In general, the energy sources can be divided in three different groups; nuclear, fossil and renewable energy sources, which all have their advantages and disadvantages. The conventional fossil energy sources are rather cheap and well accepted by society. However, fossil resources produce a lot of CO<sub>2</sub> emissions and are not in exhaustive (Jefferson: 2006). Nuclear energy is

---

<sup>4</sup> BP statistical review full report bookwork 2006, <http://www.bp.com>, retrieved on 2007-05-08.

<sup>5</sup> BP statistical review full report bookwork 2006, <http://www.bp.com>, retrieved on 2007-05-08.

CO<sub>2</sub> neutral and feedstock will not run out soon. However, nuclear based technologies have other risks due to radioactivity of the feedstock and the waste (see appendix 4).<sup>6</sup> The renewable energy sources have two major advantages: the sources are inexhaustible and hardly harm the environment. However they have three major disadvantages. They are not cost competitive yet, they upset ecosystems and they need a relative large amount of space (Hepbasli, et al.: 2001).

At this point in time, it is still not possible to create an energy mix, which is sustainable in all different aspects (Paz da, et al: 2007) Significant changes will be needed to ensure a sustainable energy mix and the EU has an important role this.

### **1.5.2 Information on the field of transport concerning energy**

With almost 20% of the total primary energy consumption and the fastest growth in consumption, the transport sector represents both a major environmental risk (CO<sub>2</sub> emission) and dependency on fossil fuels (European Commission: 2007a). The transport services sector employs over 8 million people in the EU-25<sup>7</sup>, almost two third of them work in land transport (road, rail, inland waterways). In the year 2005, roughly 13.8% of total consumption was spent on transport by private households in the EU-25, which equals to € 848 billion. The total amount of goods transport rose around 2.8% and passenger transport rose around 1.8% per year in the period 1995-2005. (European Commission: 2006b).

Transport is almost entirely dependent upon oil, this sector has seen consumption rise steeply (European Commission: 2001). Transport in general heavily contributes to pollution and energy inefficiency (Veen-Groot & Nijkamp: 1999). This has become a major concern lately. In addition, to allow transport to grow and reduce the environmental impact at the same time, significant changes are needed. Therefore, the EU has an important role.

## **1.6 Incentives**

This part will discuss the incentives in general. When a government or an institute tries to reach its goals through policies it has many different possibilities to get its policy adapted, the different

---

<sup>6</sup> Report of the French Ministry of Finance and Economy 2003: [www.cea.fr](http://www.cea.fr), retrieved on 2007-04-05

<sup>7</sup> With EU-25, the 25 member states of the EU before the enlargement of 2007 are meant



instruments are: legislation, information, and incentives. Incentives are considered to be of special interest for this research.

Governments have two dimensions of incentives at their disposal to achieve commitment to a policy: the first dimension is: monetary and non-monetary incentives, the second dimension is: positive and negative incentives. Monetary incentives can come in the form of: grants, tax cuts, and taxation. Non-monetary incentives are: promises of the government for more work, special status, monopoly rights, and cooperation with applications. Positive incentives reward good behaviour whereas negative incentives punish the bad (Oliver: 1980).

A big disadvantage of government intervention is that it disturbs the market, which is contradicting to the main goal of the EU (Qian & Weingast: 1997). Market Based Instruments are a specific form of negative or positive incentives. These instruments have as advantages: first, they improve price signals, giving a value to the external costs and benefits of economic activities, to promote economic actors taking them into account and change their behaviour to reduce negative and increase positive environmental impacts. Second, they allow industry greater flexibility in meeting objectives and thus lower overall compliance costs. Third, they give firms an incentive, in the longer term, to pursue technological innovation to reduce further adverse impacts on the environment (European Commission: 2007b). Positive incentives in the form of programmes will be more in-depth discussed in Chapter 3.

## 1.7 Outline thesis

Chapter 1 gives a general introduction to the topic of this thesis. It does so by discussing: the problem statement, information on PNO Consultants, the research methods, background information on the field of energy generation and transport concerning energy, and information concerning incentives. Chapter 2 describes the EU policy process concerning for the field energy generation and transport concerning energy, sub question (1). Chapter 3 will deal, with sub question (2), the present EU programmes used in the field of research. Chapter 4 will describe sub question (3) what will be the future policy and the incentives used to reach the policy in the field of energy generation. Chapter 5 describes sub question (4), what will be the future policy and the incentives used to reach the policy in the field of transport concerning energy. Chapter 6 will give an answer to the research question. This chapter includes the researchers reflection of the research. Chapter 6 will be closed with recommendations and final remarks.

## CHAPTER 2. POLICY PROCESS

In this chapter, the first sub research question: “*What will be the policy process for EU policies in the field of energy generation and transport concerning energy?*” will be discussed. The first part, of this chapter will be dedicated to the policy process procedure. The second part of this chapter discusses the general policy processes structure model for the EU. In the third part of this chapter, the model will be custom made for the different policy fields.

In the fourth part, three processes, which are of great importance in the policy process, will be discussed: desirability versus applicability, inertia, and formulation goals. Each of these influences will be discussed in their own paragraph, respectively 2.5 until 2.7.

### 2.1 The Policy Process procedure

The EU policy process procedure can be divided four different stages. Each stage plays its own important role in the process.<sup>8</sup>

#### **Stage I: Demands for Policy**

The Commission is the only one who has officially the power to formally initiate a proposal for a policy. However, their agenda is shaped by the Council, the European Parliament, and interest / lobby groups. One of the possibilities for the Commission to find out whether there is demand for new policies is by publishing a green paper. Green Papers are documents published by the European Commission to stimulate a debate and launch a process of consultation at European level.<sup>9</sup> The Commission invites the relevant stakeholders to participate in a consultation process and debate. Green Papers may give rise to legislative developments that are then outlined in White Papers.

#### **Stage II: Translation of Demands into Proposals**

As mentioned before the Commission is the sole initiator of policy proposals, however this restriction is only on the initial creation of the policy proposal. Once a proposal has been initiated, depending on procedures, the Council and the EP have the power to amend it. White

---

<sup>8</sup> This paragraph is strongly based on Nugent (2006)

<sup>9</sup> Green papers: [http://europa.eu/scadplus/glossary/green\\_paper\\_en.htm](http://europa.eu/scadplus/glossary/green_paper_en.htm), retrieved on 2007-10-07.

Papers published by the Commission are documents containing proposals for Community action in a specific area. When a White Paper is favourably received by the Council, it can lead to an action programme for the Union in the area concerned.<sup>10</sup> This means that all three institutions potentially play an active role during this stage. On average 70-80 proposals are initiated by the commission every year.

### **Stage III: Adoption of Policy Proposals**

Since the Maastricht Treaty and the creation of the co-decision procedure the EP now can veto or block proposals. The EP and the Council are “co-legislators” under the co-decision procedure; no proposals can pass unless both agree. If both EP and the Council adopt the proposal, it will be a very short and simple process. However, if the Council does not adopt its approval, follow-up procedure might take over a year. End result might be that proposals do not get adopted. Both fields of this research fall under the co-decision procedure.

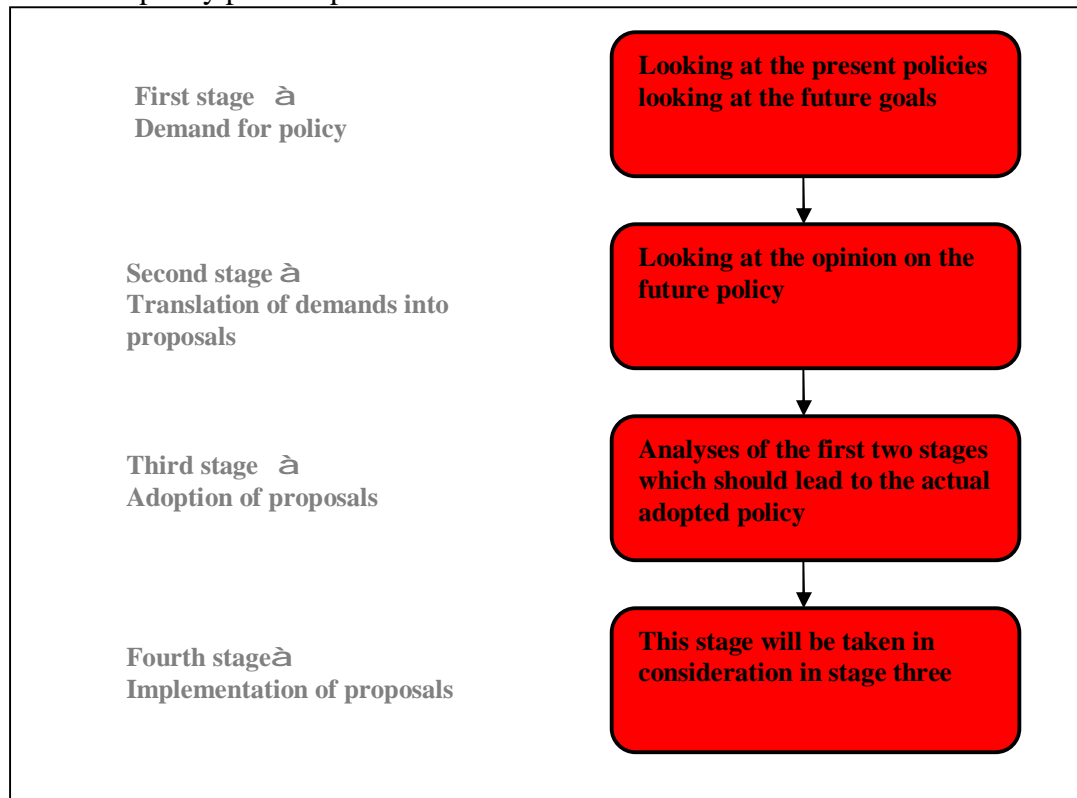
### **Stage IV: Implementation**

The Implementation part of the policy-making process is the longest and most arduous part. The Commission is in charge of implementation, which uses secondary implementing legislation, monitoring. All EU policies must be implemented at the national level, generally through national implementing legislation. The Commission is assisted by the Court of Justice to reprimand those who fail to implement EU policy (Grindle & Thomas: 1990).

---

<sup>10</sup> White papers: [http://europa.eu/scadplus/glossary/white\\_paper\\_en.htm](http://europa.eu/scadplus/glossary/white_paper_en.htm), retrieved on 2007-10-07.

### Model 1: policy process procedure



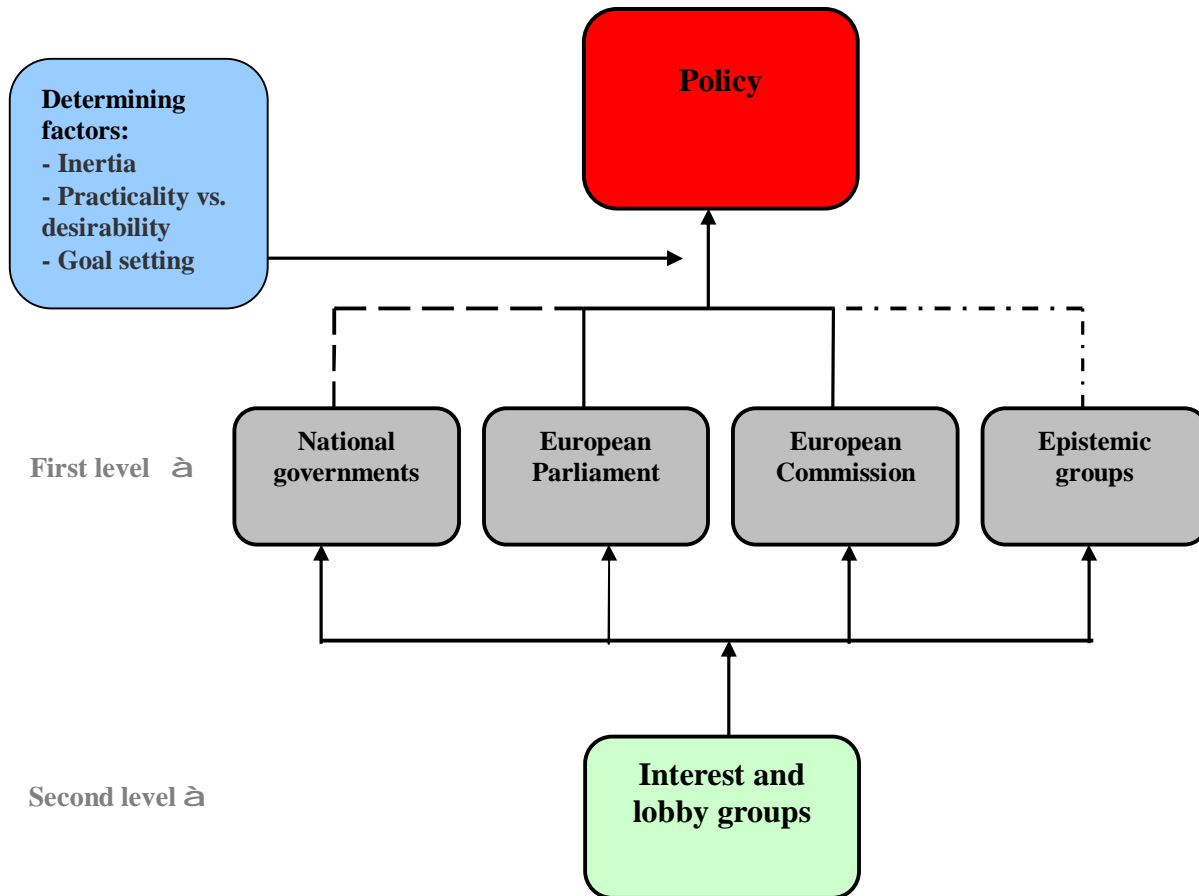
The first step of stage 1 is to look at the present policies and what the opinions of the stakeholders are about these policies; reference is made to chapter 3. The second step of stage 1 is to identify what the stakeholders want to set as goals for the EU. These goals are the guidelines, for the process from that moment on. This will be done in paragraph 4.1 for energy generation and 5.1 for transport concerning energy. The third step is the creation of a policy, subsequently this policy mixture will be used and this is in line with stage 2 which will be discussed in 4.2 and 4.3 for energy generation and 5.2 and 5.3 for transport concerning energy. The fourth step is to determine what the most likely scenario for the future policy will be. Which is in line with stage 3; this will be discussed in paragraph 4.4 for energy generation and 5.4 for transport concerning energy.

## 2.2 The EU policy process model

For this research a model has been adopted that is a version of a neo-functionalist or “top-down” model by Richardson (2006). The neo-functionalist model emphasises the roles of the European Commission, European Court of Justice, and powerful interest groups, especially firms who are

engaged in cross-border trade (Richardson: 2006). The model used in this research also takes the national governments as one of the main players involved in policymaking. With the model below, this research has tried to give a better insight in different forces, which influence the policy process.

**Model 2:** The EU policy process model



The EU policy is crafted by many different forces; this process is called the policy process. In the research model, there are two different levels described: first level and second level stakeholders. The first level is formed by four different stakeholders: European Commission, EP, European Council, and Epistemic groups. The last one, epistemic groups, is of less importance than the others, because it does not have legislative powers. These four stakeholders together shape the EU policy, each of them at their own self-interests. The model described above is applicable for most of the policy fields of the EU. However, the importance of the forces differs from one policy field to another (Sabatier: 1991). These four forces interact with one another and do

influence each other either direct and or indirectly. These first level stakeholders are strongly influenced by the second level of the policy process of the model. This second level is formed by lobby and interest groups. Lobby groups / interest groups are forces that should be recognized (Sabatier: 1991). In addition, the players of the second level are different for each policy field. Besides these two levels, there are also other influences on the policy. These other influences are gathered under the box “Determining factors” in the model. The box “Determining factors” consists of three different processes, which are active on the policy process and the policy implementation. Good policymakers take the possible interference that might occur during the implementation in consideration. The four different forces working on EU policy, which form the first level, will be described more thoroughly in the next paragraph. The second level of the policy process model, interest groups/ lobby groups, will be discussed more thoroughly in paragraph 2.4. The different influences will all be in-depth discussed in a paragraph of their own.

## 2.3 First level stakeholders

In this paragraph the four first level stakeholders, being the European Parliament, European Commission, National governments, and Epistemic groups, will be discussed. In the second part of this paragraph, these stakeholders will be linked to the two fields.

### **European Parliament:**

The European Parliament is one of the two highest legislative bodies of the EU. The EP consists of elected members from the different Member States. When the EU has competence in a specific field then EU law does override national law. The EP does not have legislative initiative like most national parliaments. The Council has greater powers over legislation than the Parliament where co-decision procedure (equal rights of amendment and rejection) does not apply. However, the EP has control over the EU budget and has a veto over the appointment of the European Commission.<sup>11</sup>

---

<sup>11</sup> The European Parliament: <http://europarl.europa.eu>, retrieved on 2007-06-12.

### **European Commission:**

The European Commission is the most important institution of the EU. It is composed of 27 Commissioners led by a Commission President. José Manuel Durão Barroso is the current president. In 2004, this Commission took office. Their main responsibility is to propose legislation, to implement decisions, to hold up the Union's treaties and running the EU overlap between them. In the fields with great overlap, more than one commissioner is active.<sup>12</sup>

### **European council:**

The Council of the EU is generally composed by 27 representations, one for each Member State. The exact representation depends on the discussed field. This representation always consists of at least one minister or one State Secretary. These representatives work for the interest of the state they represent. There is no such thing as one council, because it is constantly changing and is formed by different representatives in different policy fields.<sup>13</sup>

### **Epistemic communities:**

An epistemic community is a community where professionals are connected in a network, which recognize competences, expertises, and authoritative claim to policy relevant knowledge within a specific field (Sundström: 2000). It has become increasingly difficult for decision-makers to deal with the ever-growing stream of information in the specific issue-fields. To be able to manage all this they need people to abbreviate the information. Secondly, it is hard for policy-makers to make sure that they have a real holistic view of the issue. These two things are tasks of epistemic communities (Sundström: 2000). Members of epistemic communities can influence policymaker's interests either directly or indirectly (Haas: 1992).

### **2.3.1 Energy generation**

The different first level stakeholders described above have in most fields specific representatives or comities in the field of energy generation. In the European Commission, the following commissioners are involved in the field of energy generation: Commissioner Andris Peibalgs for energy, Commissioner Janez Poyocnik for sciences and research, and Commissioner Charlie

<sup>12</sup> The European Commission: <http://ec.europa.eu>, retrieved on 2007-06-18.

<sup>13</sup> The European Council: [http://europa.eu/european\\_council](http://europa.eu/european_council), retrieved on 2007-06-18.

McGreevy for Internal Market and Services. Moreover, there is a director general for energy and transport mister Ruete and for EURATOM mister Goethem.<sup>14</sup> In the European Parliament, there are special commissions in the field of energy generation, like the Climate Change commission.<sup>15</sup> The national governments have special council meetings on: first Transport, Telecommunications and Energy, second environmental and third Competitiveness.<sup>16</sup>

### **2.3.2 Transport**

In the European Commission the following commissioners are the most important ones involved in the field of transport concerning energy: Commissioner Jacques Barrot for transport, commissioner Andris Piebalgs for energy, and Travros Dimas for environment. Moreover, there is a director general for energy and transport, mister Ruete.<sup>17</sup> In the field of transport concerning energy the most important commissions would be: Transport and Tourism and Climate Change.<sup>18</sup> There are also special council meetings on Transport, Telecommunications and Energy, and on environment.<sup>19</sup>

## **2.4 Second level stakeholders**

Lobby and interest groups form the second level stakeholders of the policy process model. An important characteristic of lobby and interest groups is that they are seen as a source of: legitimacy, support, and information in policy-making. Moreover, the EU has recognized institutionalising consultation; it would be a form of reducing the risk (Mazey & Richardson: 2001). Therefore, all the essential stakeholders are consulted when their interests are at stake. This reduces much resistance when the specific policy proposal is adopted (Henderson: 1977). Interest groups can act independent from the government and therefore shape agenda's and political outcomes (Richardson: 2006). In practice, the major legislation institute of the EU, the Commission, has two strategies: large open discussions, and committees that are more restricted. This last one can be in the form of forums with specific selected groups or even bilateral

---

<sup>14</sup> The European Commission: <http://ec.europa.eu>, retrieved on 2007-06-18.

<sup>15</sup> The European Parliament: <http://europarl.europa.eu>, retrieved on 2007-06-12.

<sup>16</sup> The European Council: [http://europa.eu/european\\_council](http://europa.eu/european_council), retrieved on 2007-06-18.

<sup>17</sup> The European Commission: <http://ec.europa.eu>, retrieved on 2007-06-18.

<sup>18</sup> The European Parliament: <http://europarl.europa.eu>, retrieved on 2007-06-12.

<sup>19</sup> The European Council: [http://europa.eu/european\\_council](http://europa.eu/european_council), retrieved on 2007-06-18.

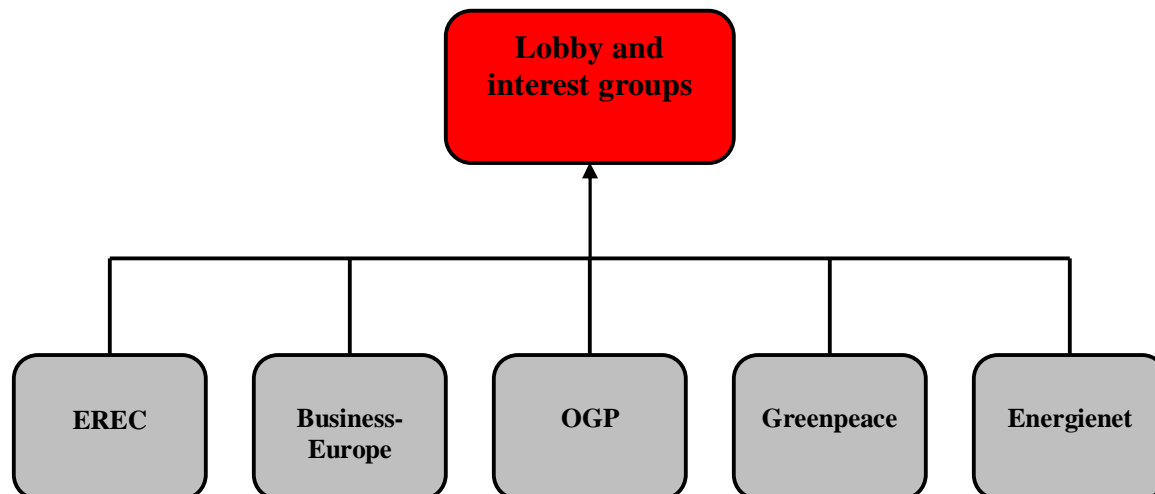


meetings (Richardson: 2006). This research will elaborate the second level stakeholders for each of the fields of interest of this research in paragraph 2.4.1 and 2.4.2.

### **2.4.1 Lobby and interest groups in the policy field of energy generation**

In the light of this research, it was found especially interesting to have interviews with: oil companies, environmental organizations, renewable energy source promoters, energy production associations, and etc. In the interviews, the stakeholders expressed that on average their opinion was that the three most important stakeholders were: the association for oil & gas producers (hereafter; OGP), renewable energy lobby as European Renewable Energy Council (hereafter; EREC), and environmental organizations as Greenpeace. There was an overall consensus on the fact that OGP is one of the main three stakeholders in the field of energy generation. The other two stakeholders were mentioned by most stakeholders however not by all.

**Figure 3:** The EU policy stakeholders in the field of energy generation

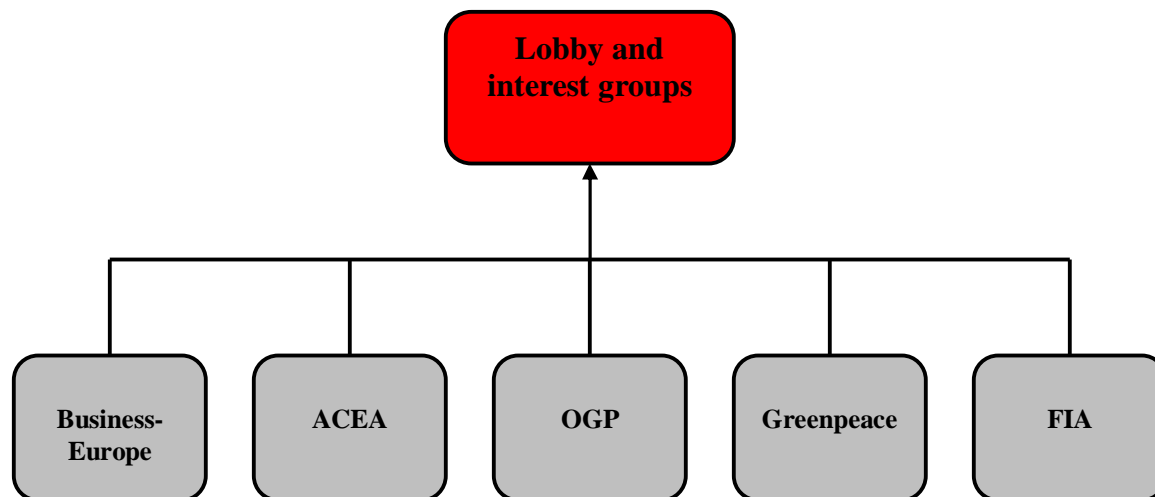


The different stakeholders mentioned in the Figure 3 are examples of the stakeholders used in this research. The first and second level stakeholders, from whom information through structured interviewed have been gathered, are listed in appendix 4. This appendix gives the names and description of the interviewees; it also gives the names and the descriptions of their organizations.

## 2.4.2 Lobby and interest groups in the policy field of transport concerning energy

In the light of this research, it was found highly interesting to have interviews with: oil companies, environmental organizations, car manufactures, rail associations, and etc. In the interviews, the stakeholders expressed that on average their opinion was that the three most important stakeholders were: OGP, European Automobile Manufacturers' Association (hereafter; ACEA) and BusinessEurope. These three stakeholders were mentioned in almost all the interviews as the most important stakeholders in this field.

**Figure 4:** The EU policy stakeholders in the field of transport concerning energy



The different stakeholders mentioned in the Figure 4 are examples of the stakeholders used in this research. The first and second level stakeholders, from whom information through structured interviewed have been gathered, are listed in appendix 4. This appendix gives the names and description of the interviewees; it also gives the names and the descriptions of their organizations.

## 2.5 Practicality versus desirability

In almost all policy choices that are made there is a conflict between practicality and desirability. Basically there are four combinations of the variables desirability with practicality. This is presented in table 1: *The desirability and practicality of a lesson* below. Two of these combinations are straightforward. If something is deemed both desirable and practical, then it is doubly attractive to effectuate. Equally, if something is considered both undesirable and

unpractical, it is doubly unattractive and therefore likely to fail if an attempt is made to put it into effect.

Conflicts might arise when something is desirable, but it is unpractical and so it will properly fail. As in Greek mythology, such a combination is called “a siren call”, attractive from far but a threatening shipwreck if it is adopted on grounds of desirability without regard to practicality. The last option, something is technically practical but inconsistent with the values and interests, this can be frustrating to its proponents, but it does not cause failure, since no action has been taken (Rose: 2005).

**Table 1:** *The desirability and practicality of a policy*

		<i>desirability</i>	
		High	Low
<i>Practicality</i>	High	Doubly Attractive	Unwanted technical solution
	Low	Siren call	Doubly rejected

Source: (Rose: 2005)

## 2.6 Inertia

In general, there has always been a great repulsion against policy change (Esping-Anderson: 1996). People generally reject change, not because the changes are bad for them, but more often because of inertia. The greater the routinezation and institutionalization the higher the reliability and accountability, this forms an obstruction against change. Therefore, these characteristics give stability but also resistance against change. Internal and external stakeholders prefer reliability and resist against change (Amburgey & Kelly & Barnett: 1990).

The majority of the changes in policies are not radical ones. This is because of resistance to change: when policies are long active they become institutionalized and cultivate interests in their perpetuation (Esping-Anderson: 1996).

When looking at institutionalization, according to Pierson (1998), stickiness is the main point. This institutionalization stickiness can be divided in two points: “veto points” and path dependency. First, veto points means that to make big changes in policies not the normal majority, of 51 percent, but much more is needed. This means that even minorities can block these changes. Secondly, path dependency, which means that it is hard to reverse a policy choice. The reason for this is that when a policy is set politicians start investing in it. This means that

there would be many costs when a change would be made (Pierson: 1998). Inertia is an aspect that will always work on change and transition. When people have more believe in the new policy they will be less inert.

## 2.7 The formulation of the goals

There can be focused on two potential relevant dimensions, which refer to the underlying perspective of the research and the analytical focus (Weale de. et al: 2000). This is shown in table 2: *Research objective versus analytical focus* for clarification.

**Table 2:** *Research objective versus analytical focus*

		analytical focus	
		impact	outcome
research perspective	target- orientated	1	2
	process-orientated	3	4

Source: (Weale de et al.: 2000)

The first dimension is the analytical focus, which has two distinctions: policy outcomes and impacts. The main differences are with policy impacts, the effectiveness of the implementation is assumed, at least, when the objectives defined in the policy correspond to the practical application and the legal transposition (Weale de et al.: 2000).

The second dimension refers to two different research perspectives on the implementation process; “top-down” and “bottom-up”. In top-down or target-oriented research the success of an implementation is judged upon a comparison of the actually and intended outcomes. Bottom-up or process oriented research: the idea behind this concept is that policy objectives and instruments are dynamic and change during the process (Richardson, 2006).

## 2.8 Conclusion

The European policy process is complicated and has many different layers. The policy procedures described in Model 1 has four stages: demand for policy, translation of demands into proposals, adoption of policy proposals, and implementation. The Commission initiates the proposals for EU policies. However, also the European Parliament has the ability to redesign the

policies proposed by the Commission. Moreover, the Council still have in some fields a veto and set goals for themselves and for the EU. However, also the European Parliament and the council have, under the co-decision procedure, the ability to redesign the policies proposed by the Commission. Model 2: The EU policy model provides insight in the different forces that are active on the policy process. The first level is formed by: European commission, European Parliament, European Council, and Epistemic groups. The second level of the model is formed by lobby and interest groups, which influence the first level stakeholders. These lobby and interest groups are very powerful in the EU, as they have become an essential part of the EU policy process.

Moreover Model 2: The EU policy model, describes “Determining factors” which are formed of: inertia, goal setting, and practicality versus desirability, which complicate policy process. Inertia makes people, stakeholders, and institution unable or not willing to change. The practicality versus desirability issue is that practical and desirable are not always inline in a policy, when these are not inline in a policy there could be a disastrous situation. Another influence is the way of formulation of the goals. A different way of formulating goals can have big impact on how these matters will be dealt with by the inhabitants or companies.

## CHAPTER 3. THE PRESENT SUPPORT AND INCENTIVE PROGRAMMES

In this chapter, the focus will be on the second sub research question: “*What are the present EU policies and incentives programmes in the field of energy generation and transport concerning energy?*”. This question will partly discuss stage one, Model 1, of paragraph 2.1, demand for policies. In the first paragraph, the present incentive programmes will be described. In the second paragraph, the present support programmes of the EU will be discussed. The third paragraph will be used to express the opinions on the present programmes of the different stakeholders, described in Model 2: the policy process model. This is very important to know because “*Who doesn’t learn from the past is doomed to repeat it*” (Santayana: 1924). In other words only by knowing how the EU programmes are at present, the future demand for policies can be derived.

### 3.1 The present incentive programmes

Incentives in the general context have been discussed in paragraph 1.6. This paragraph will take a closer look in the specific fields. The biggest negative incentive plan concerning energy is the emission trading scheme: not only for the money involved, also for its pioneering and progressiveness. The aims of the emission trading scheme is the internalisation of costs linked to degradation of the environment or application of the polluter pays principle (European Commission: 2001).

The two most important monetary incentives are: feed-in tariffs and green certificate systems. The *green certificate system* currently exists in several of the Member States of the EU. In the green certificate system, the prices of renewable electricity are equal to those of conventional energy-resources prices. The additional costs of the production renewable energy are covered by a trading system. The production of renewable energy gives the producers a certificate. Consumers or producers are obligated to purchase these certificates in order to compensate their CO<sub>2</sub> emission. A real market for these certificates is created in which new renewable energy producers are attracted, provided the prices are high enough (European Commission: 2005).

Besides this *emission trading scheme* there is also another system active in the different member states. *Feed-in tariffs* are used in most of the Member States of the EU. Feed-in tariffs are characterised by a set price, for a period of time that have to be paid by electricity companies and

distributors to domestic producers of green electricity. These systems are responsible for additional costs, the suppliers of energy pay for these additional costs and they pass it on to the consumers. A variant of the feed-in tariff scheme is: the fixed-premium mechanism. In this system, the government adds a fixed premium on the normal price for electricity from renewable energy sources (European Commission: 2005).

## 3.2 The present support programmes

There are many different programmes in the EU with overlap between them. This research will focus on the four most interesting programmes for this study. These programmes are selected because their objectives are in line with the focus of this research. Moreover, there are large sums of money reserved for these programmes. The programmes that will be analysed are: LIFE+ Programme, Framework Programme 7, Competitiveness and Innovation framework Programme, and Marco Polo. The different programmes as described above all have their own phase of the process.

### **3.2.1 LIFE Programme**

In the year 2007 LIFE + programme was introduced, as a continuation of LIFE, LIFE II and LIFE III. The positive results achieved by the former LIFE programmes were the bases for the continuation of the programme. LIFE contributes to the development, implementation, and enhancement of the EU environmental policy and legislation. Moreover, it is intended to contribute to the integration of the environment into other EU policies. In addition, LIFE should support the development of new solutions to environmental problems, which the EU is facing. LIFE+ has three components: LIFE+ Nature and Biodiversity, LIFE+ Environment Policy and Governance, and LIFE+ Information and Communication (European Commission: 2004).

#### **LIFE-Environment:**

The LIFE-Environment goal is to contribute to the development of innovative techniques and methods. This is done by co-financing the demonstration of projects. The purpose of LIFE-Environment is to close the gap between research and development results and the application on large-scale. This programme is among other things concerned with: energy production and

distribution, renewable energy technologies, energy-efficiency in areas such as industry, services, buildings, transportation, lighting and equipment, as well as the reduction of CO<sub>2</sub> emissions.<sup>20</sup>

### **3.2.2 The Seventh Framework Programme**

The Seventh Framework Programme (hereafter, FP7) was adopted by the European Union as the instrument among others for funding research and development during 2007-2013. The Framework Programme has a long history, which started in the first framework programme from 1984 and lasted till 1987. Before, FP7 was introduced, five other programmes existed each with a 3 or 4 year period. The FP7 was intended to bundle the different research-related EU initiatives together. The key the goals are: growth, competitiveness, and employment. The seventh Framework Programme is divided in four specific program groups; these are corresponding with four major objectives of European research policy:

- Gaining leadership in key technology and scientific areas. (Cooperation)
- Stimulating the excellence and creativity of research in the EU. (Ideas)
- Developing and strengthening the human potential of research in the EU. (People)
- Enhancing innovation and research capacity in the EU. (Capacities)

The FP7's total budget is over 50 billion Euro spread over 7 years (European Commission: 2006d). The most important parts from the research objective will be briefly explained below.

#### **Energy:**

The energy part of the FP7 intends to achieve: energy carriers and a diversification of the energy mix especially renewable ones. Secondly, it will try to achieve more energy efficiency, which includes rationalising use and storage of energy. The energy part is a part of cooperation pillar, which calculates for a budget of € 2.350 million for the period 2007-2013 (European Commission: 2006d).

---

<sup>20</sup> The life + programme: <http://ec.europa.eu/environment/life/>, retrieved on 2007-06-02.



## **Transport:**

The transport component of FP7 will fund research in order to develop safer, "greener" and "smarter" European transport systems. It is imperative to address the different political, technological, and socio-economic challenges in a cost-effective manner on issues such as the "clean and safe vehicle" of the future, interoperability and inter modality especially with respect to waterborne, and rail transport. The transport part is a part of cooperation pillar, which calculates for a budget of € 4.160 million for the period 2007-2013 (European Commission: 2006d).

## **Environment (including climate change):**

The challenges posed by the increasing natural and man-made pressures on the environment and its resources require a coordinated approach at pan-European and international levels. The different projects, which should be supported, by this part of the FP7 are: Earth observation and assessment tools, Environmental Technologies, Sustainable Management of Resources, Climate change, pollution and risks. The environment part which is a part of cooperation pillar has a budget of €4.160 million for the period 2007-2013 (European Commission: 2006d).

### **3.2.3 Competitiveness and Innovation framework Programme**

The "Competitiveness and Innovation framework Programme" (hereafter, CIP) is constructed by the EU to ensure achievement of the objectives set by the renewed Lisbon strategy. There are three different programmes in the CIP framework:

- Entrepreneurship and Innovation Programme
- ICT Policy Support Programme
- Intelligent Energy-Europe Programme

The interest of this research is mainly in Entrepreneurship and Innovation Programme and Intelligent Energy-Europe Programme therefore these will be discussed briefly. The transversal theme of CIP will be Eco-innovation. CIP will be active from 2007 to 2013, and has a budget of 3.600 million Euro.<sup>21</sup>

---

<sup>21</sup> The CIP programme: [http://ec.europa.eu/enterprise/enterprise\\_policy/cip](http://ec.europa.eu/enterprise/enterprise_policy/cip), retrieved on 2007-07-11.

### **Entrepreneurship and Innovation Programme:**

Innovation for enterprises is promoted by providing access to financial sources. These financial sources are promoted by sharing risks and rewards with private equity investors and secondly provide counter or co-guarantees to national guarantee schemes. Innovation actions should improve the conditions for innovation, including exchanges of best practices between Member States. The total budget of the Entrepreneurship and Innovation Programme is €2.166 Million for the period of 2007-2013 (European Commission: 2006c).

### **Intelligent Energy-Europe Programme:**

This programme is intended to improve the penetration of new and renewable energies on the energy market. Moreover, it should encourage energy efficiency and foster compliance with the energy regulatory framework. The programme tries to improve the speed of action in relation to the agreed EU strategy and targets set in the field of sustainable energy. The goals are: increase the adaptation and demand for energy efficiency, promoting renewable energy sources and energy diversification, and stimulating energy efficiency and the diversification of fuels in transport. Moreover, the programme should overcome the gap between the successful demonstration of innovative technologies and their effective introduction into the market to achieve mass deployment. The total budget of the Intelligent Energy-Europe Programme is €727 Million for the period of 2007-2013 (European Commission: 2006 c).

#### **3.2.4 Marco Polo programme:**

The first Marco Polo Programme was active between 2003 and 2006. The EU decided to extend Marco Polo to support the economic operators. The newest programme is formally called Marco Polo II. This programme aims at achieving a modality shift and avoiding a substantial part of the expected yearly aggregate increase in international road freight traffic, to short sea shipping, rail and inland waterways or to a combination of modes of transport in which road journeys are as short as possible. The total budget of Marco Polo is €400 Million for the period of 2007-2014 (European Commission: 2006e).

### 3.3 The opinion on the present programmes

The programmes have been assessed firstly by looking at the opinion of the EC. Secondly, the opinion of the EP is evaluated. Thirdly, the second level stakeholders opinions have been regarded. CIP is not much mentioned in the different interviews most probably because it is relatively new and does not have a predecessor like the other programmes.

#### **3.3.1 The opinion of the Commission**

In comparison with the feed-in tariffs, the green certificate system shows a significantly higher support level in 2005 (European Commission: 2005). This can be explained by the fact that investors in green certificate systems request a higher risk premium. In addition, a still immature green certificate market as well as administrative costs are reason for the higher support level. It is still unknown how the price level for green certificates will develop in the medium and long range (European Commission: 2005). According to the European Commission, in general all the different programmes are in practice as intended. The analyses of the EU for wind energy show that in one-fourth of the Member States of the EU the support is too low for initiating renewable energy sources. Another fourth of the countries have enough support, however they still only attain average results. And this is mainly due to the existence of administrative and grid barriers (European Commission: 2005). The analyses show also that the two best performing countries are with a feed-in tariffs system and the hybrid support system (de-taxation and investment grants). They perform best in terms of economic efficiency as well as effectiveness of support. A key element of this success is: stable planning conditions (European Commission: 2006b). Still nearly 70% of the EU member states have support levels, which are too low to develop potential technology for renewable energy (European Commission: 2005).

#### **3.3.2 The opinion of the EP**

Most striking is that most of the representatives of the parties of the EP did not have an opinion on the performance of the different programmes. They argued it was not possible for them to check the performance of the different programmes. Moreover, they are of the opinion it is the Commission's task to check on the performance of the programmes. Furthermore, most of them

had their focus on legislation. Another reason was their limited presence in the EP, and therefore were not able to cover all aspects.

The representatives of the EP expressed positive opinions on the FP7 programme; because it would promote R&D. Promoting R&D promoting was seen as one of the main objectives in the EU policies. Furthermore, the opinions expressed on the incentives programmes was that the grants for renewable energy are not working because for every penny spent on renewable energy a pound goes to the other industries as grants, especially to the coal industry which is heavily subsidised. If it could be achieved that there are no subsidies at all, this would be a great improvement. In addition, there was much believe, that the emission trading scheme is an efficient and effective tool to ensure the usage of renewable energy. However, the emission trading scheme is not working as it should. The emission rights prices are too low to ensure it would reach its intended goals.

### **3.3.3 The opinion of the second level stakeholders (energy generation)**

Positive opinions on the programmes will be discussed first, followed by the negative opinions on the programmes. The positive opinions that have been expressed are: on FP7 especially on the R&D part of the programme. *Secondly*, there are many stakeholders who speak positively about the CO<sub>2</sub> emission-trading scheme. However, all of these stakeholders do say that there have to be some large changes in the scheme to make sure it will work properly.

Negative opinions expressed by the stakeholders were: first, the different programmes have too much red tape; bureaucracy, and rules. *Secondly*, there is a lack of an overall European framework. Furthermore, a comment frequently heard is that the EU does not look at the possible consequences of their decisions. These decisions can have consequences for the environment, the economy, the competitiveness, the consumers, and the companies.

### **3.3.4 The opinion of the second level stakeholders (transport concerning energy)**

In this paragraph, the positive and negative opinions of the different stakeholders on the present programmes and incentives in the EU are expressed. The positive opinions have been expressed concerning FP7, which is a programme, dedicated among other things to Research and Development. Negative opinions expressed by the stakeholders were: first, there is too much red tape to use the programmes. *Secondly*, the programmes are all concerned with modality shift

instead of improving transport in general. Furthermore, a comment frequently heard is that the EU does not look at the possible consequences of their decisions.

One of the stakeholders gave a good example of the aforementioned. The current policy is to promote biofuels and biomass as alternative energy sources. However, the promoting policies already have their consequences for society: the prices of food and paper are rising, and CO<sub>2</sub> emission goals are not reached. The CO<sub>2</sub> emission goals will be hard to reach if the EU keeps on promoting biofuel and biomass, because these are not less polluting. Secondly, to be able to use biomass there have to be new coal electricity plants, which puts (even) more pressure on the environment.

### 3.4 Conclusion

This chapter focussed on the second research question: “*What are the present EU policies and incentives programmes in the field of energy generation and transport concerning energy?*”. To answer this question a division in two parts has been made. First, the different incentives programmes used in the EU were examined. Second, the four most important programmes, which are active within the EU in the field of this research, have been discussed.

The incentives programs that are at present most practiced in the EU are: green certificate and feed-in tariffs. The *Green certificate program* is part of the emission trading scheme to incorporate external costs for CO<sub>2</sub> emission, where feed-in tariff ensures higher prices for renewable energy. These programmes are not (yet) mandatory by the EU.

The four main support programs are: Marco Polo, Life +, CIP, and FP7. These programmes all have very large budgets, which should mainly be used for grants.

The first and second stakeholders were asked to give their general opinion on the present programmes. The general opinions on the different programmes were not as divided as might have been expected. The overall opinions of the stakeholders were: first, positive opinions were expressed on programmes which focus on R&D. Most stakeholders saw a key role in R&D and R&D spending by the EU for dealing with the issues in the field of transport and energy generation. Overall, FP7 was highly appreciated by all stakeholders. Second, most of the second level stakeholders were sceptic concerning the Life programme. The Marco polo programme is concerned promoting a modality-shift. Most of the second level stakeholders expressed that Marco polo programme should focussed co-modality and more competition instead of a



modality-shift. CIP was the least mentioned programme. The limited feedback made it impossible to make a balanced judgement on CIP. Taken all the opinions in consideration, it can be concluded that there is much demand for improvement of the present EU programmes.

## CHAPTER 4. FUTURE POLICY IN ENERGY GENERATION

In this chapter, sub research question 3: “*What will be the most likely future EU policy scenario on energy in the field of energy generation?*” will be discussed. The answer to this question will be derived by discussing the first three stages of Model 1. An overview is presented on what future goals, policies, and incentives will be according to the first and second level stakeholders. Model 2: The EU policy process model describes the different levels of stakeholders, which have been used to gather information. Opinions have been gathered through structured interviews of the first level stakeholders (the European Commission and the European Parliament) and the second level stakeholders (the different lobby and interest groups). Figure 3: *the EU policy stakeholders in the field of energy generation* and Appendix 1 give an overview of these first and second level stakeholders.

The first paragraph will elaborate on the opinions on the future goals in the field of energy generation. The second paragraph, will discuss the opinions of the future policies in the field of energy generation. In the third paragraph, the opinions on the future incentives in the field of energy generation will be discussed. The last paragraph of this chapter will give a conclusion concerning the third sub research question.

### 4.1 The future goals

The future goals are the second part of the first stage of Model 1: demand for policy. The opinion of the EP and the Commission will be presented in subparagraph 4.1.1 and 4.1.2. Of the second level stakeholders, many different lobby and interest groups have been interviewed. This part is discussed in paragraph 4.1.3.

#### **4.1.1 The future goals according to the Commission:**

In general, there are five goals set which should be included in the new EU policies: taking global action (to achieve such a thing the EU speaks with one voice.), using the new internal energy market better, enhancing energy efficiency, increasing the use of renewable energy, and developing technology (European Commission: 2007d).

Besides these general goals the more specific goals set by the Commission will be discussed chronologically. In 2001, the European Union has set a target that 21% of the electricity

generated in the EU Member States should come from renewable energy sources by 2010. A report by the Commission on the progress made, underlines the importance to set the goals on renewable electricity to ensure immediate lifting of administrative barriers, unfair grid access, and complex procedures (European Commission: 2007c).

The European Council has ratified the Commission's proposals, concerning energy and climate change on 9th of March 2007. The most significant goals which should be achieved are: *first*, carbon dioxide reduction: a binding target to reduce EU CO<sub>2</sub> emissions by 20% by 2020, regardless of progress made in international negotiations for a post-Kyoto agreement. (Moreover, a binding target of 30% CO<sub>2</sub> emission reduction would be set if other industrialized nations including the United States take similar steps.) *Second*, renewable energies: a binding target to achieve 20% of the EU's overall energy consumption should come from renewable energy sources by 2020. *Third*, energy efficiency: 20% of the EU's energy consumption should be saved compared to projections for 2020 (Council of the European Union: 2007). These goals will hereafter in this paper be referred to as the 20%, 20%, and 20% goals by 2020. Furthermore, the commission states that there should build on the existing Biomass Action Plan2 (European Commission: 2006a).

#### **4.1.2 What should be the goals of the EU according to the EP**

The general opinion of the different European Parties representatives was that the most important goals in the field of energy generation are environment protection and limiting climate change. These goals were divided in three different goals energy efficiency, energy saving, and more renewable energy, which are in line with the 20%, 20 %, and 20% goals by 2020. These are the main goals; the next three goals are subsequent. *First of all*, the EU should take a leading role in the world when it comes to limiting climate change and environmental protection. *Second*, an EU goal should be to solve all cross border EU bottlenecks. *Third*, the EU should focus on improving the internal energy market in the EU. This last goal should lead to accomplishing the earlier mentioned goals. A better working internal market would ensure that all costs are incorporated which would lead to more efficiency, effectiveness and less CO<sub>2</sub> production. This would lead to a more competitive price for renewable energy sources. Incorporating all cost is a form of negative incentives, which will be more in-depth discussed in paragraph 4.3.

The opinions were divided on if the 20 %, 20 %, and 20% goals by 2020 were too ambitious and ambiguous. Argumentation why these goals were too ambitious is: *first*, the attainability is



improbable. *Secondly*, they would be ambiguous because striving to reach one goal might have negative effects on reaching one of the other goals. In addition, if these goals should really be reached it would be very expensive and they would have many negative side effects to the society. Other political parties believed that the goals set by the EU were not high enough. This last point is inline with the points made in paragraph 2.5 where the most desirable situation is not the actual situation.

#### **4.1.3 What are the goals of the EU according to the second level stakeholders**

The majority of the interest groups mentioned that: *firstly*, the most important goals set by the EU are the 20%, 20%, and 20 % by 2020 goals. These are seen as the most important goals because all other goals originate from these main goals. *Secondly*, the EU will set goals to improve energy generation by biomass. There will be a new generation of biomass, which will have fewer disadvantages compared to present biomass. *Thirdly*, the EU will set goals to promote the carbon capture system. Currently the carbon capture system is regarded as one of the main solution in solving or relieving the environmental problems. However, this technique is not completely developed yet. *Fourthly*, the stakeholders mentioned that there will be some alterations and improvements of the emission trading scheme. The emission-trading scheme is in principal regarded as a good and fair system. However, at the starting point of the emission-trading scheme too many licenses for emissions have been granted. Therefore, the prices are at this time too low. *Fifthly*, instalment of country specific guidelines on how much energy should be saved. In addition, guidelines might be set for each of the industries specifically. Furthermore, at industry level there should be the freedom to interpret how the goals should be achieved.

The majority of the interest groups mentioned that the goals set by the EU were: *first*, the goals are set to what people want to hear. The general opinion is that the 20%, 20%, and 20% goals by 2020 are not reachable by 2020. This last point is inline with the points made in paragraph 2.5 where the most desirable situation is not practical, because it is unrealistic. *Second*, it is goals are totally focus on the outcome and not the process as mentioned in 2.7. The majority suggested that perhaps in 2030 with good fortune and hard work these goals can be reached. These goals set by the EU indicate that they are political and not scientific statements. This means that these statements are more meant to motivate people or achieve political profits than that these are based on actual facts. *Third*, the problems concerning energy and environment are global, so there is not

so much the EU can do. *Fourth*, if the EU wants to reach these goals it has to know at what costs. Because when these goals should be achieved, it cannot be done without losing its competitiveness (unless the rest of the world would also have the same goals, which will not likely be the case). Competitiveness boils down to a job issue and therefore to an employment issue, as long as the EU import products from countries, which do not have these restrictions. *Fifth*, a minority mentioned that only when the goals would be taken seriously the goals set by the EU might be partly ambitious enough to relieve or solve the problems.

## 4.2 The future policy

Below the opinions on the future policy will be discussed. The future policies are the first part of the second stage of Model 1, translation demand in to proposals. The focus will be on the time period and the dynamics of the policies. In addition, the focus will be also on the mixture of the policy; legalization, information, incentives. In this part the opinion of the Commission, the EP, and the second level stakeholders will be discussed each in their own paragraph.

### **4.2.1 The future policy according to the Commission**

Overall, the EU-energy policy should include the following points:

- development of competitive renewable energy sources,
- diminishing the demand of energy,
- taking a leading role worldwide towards solutions,
- ensuring liberalization of the energy market will benefit to the EU as a whole,
- stimulating investment in clean energy production and energy efficiency,
- keeping Europe at the cutting edge of energy technologies,
- diversifying the EU's energy mix with greater use of competitive indigenous and renewable energy (European Commission: 2006a).

The Commission states that a mixture of the different policy tools should be used to achieve the goals set by the EU. Furthermore, according to the Commission coherency and consistency are very important issues in this field when dealing with the external world or the internal market (European Commission: 2006a).

The next points are according to the Commission the main points when considering policy. *First*, research, demonstration and market replication initiatives will be used to bring clean and

renewable energy sources closer to the markets (European Commission: 2006a). *Second*, the EU Emissions Trading Scheme creates a flexible and cost-efficient framework for more climate friendly energy production. The expanding and further improving the functioning of the EU Emissions Trading Scheme will give the EU great opportunities (European Commission: 2006a). *Third*, the Commission notes that taxation is a powerful tool for providing incentives. The Commission also highlights the potential for using tax credits as incentives for both companies and households. *Fourth*, the Commission states that a key to success would be a change of consumer's behaviour. To do so the Commission will plan a number of education measures to raise public awareness of the importance of energy efficiency, including education and training programmes on energy and climate issues (European Commission: 2006a) (European Commission 2001). *Fifth*, the Commission will improve the internal market and remove the barriers to develop renewable energy in the electricity sector reducing the administrative burden, to improve transparency and provision of information. *Sixth*, the Commission will continue to promote, support, and encourage renewable energy sources (European Commission: 2007a).

#### **4.2.2 The future policy according to the EP**

Most of the representatives of the European Parties believe that legislation is the policy instrument to be used to attain the goals. Legislation should especially be used to improve the internal market. As explained in paragraph 4.1.2 most of the political parties had the idea that the goals that would be set should be reached through a good working internal energy market. According to those representatives of the European Parties, legislation should be used to make the internal energy market better working. Negative incentives will be used to ensure that all cost will be incorporated in the energy price. A good working internal energy market will give enough incentives from itself; therefore no more positive incentives for renewable energy sources are needed. Besides legislation, most political parties had a specific role in mind for incentives namely to ensure support for and execution of legislation. Furthermore, it will be used to reach the goals for the near future. Incentives should be used with care because they might disturb the internal market. When looking at the different policy instruments most parties founded consistency and predictability were very important aspects in any field. This is especially valid in the field of energy generation because this field has to coop with big changes, big investments and long term planning. This does not mean that the policies should be rigid, they should be

dynamic and able to adapt to new insight or situations. However, they should also give clear-cut guidelines to the citizens and the companies.

#### **4.2.3 The future policy according to the second level stakeholders**

All the second level stakeholders argue that any policy starts with legislation. The stakeholders were divided in two groups concerning the use of positive incentives. A majority of the stakeholders believed in incentives to trigger people, companies and others to comply with and implement the legalisation. While the minority had more believe in hard and clear legislation and information. The majority of the second level stakeholders mentioned that the EU should focus on R&D and demonstration. While a small minority of the stakeholders mentioned that it was now time for the EU to focus on incentives for demonstration.

According to a majority of the interest groups, it is important that the EU policies in the field of energy generation should be predictable. First of all, long term goals mean that the Net Present Value of the different projects or investments can be calculated. *Secondly*, predictability would give the EU more competitiveness. The economical situation in the EU is as such that profits are generally lower than in new arising markets. However, companies whom invest want higher profit margins when risks are higher. If the EU has very predictable policies, the risk compensation can be lowered. *Thirdly*, if there is long term planning it is known which path to follow. This could work highly motivating, and it also works as a source of information and a guideline to prepare for the near future. However, it became clear that further down the line of the supply chain there is less interest in predictability. Whereas large organizations think 20, 30, or even more years ahead, the further down the stream the shorter the look-ahead time span will be. At the last stage, where the product is sold; the consumer is complete depended on what the market offers.

The stakeholders believe that there are already large sums of money spent on R&D and renewable energy sources in the field of energy generation. The money spent on renewable energy sources is to make sure that the prices for renewable energy would be competitive with those of the conventional ones. In addition, positive incentives should be limited in time otherwise there would never be a fair competition.

The EU already spends a relatively large amount of their budget on energy related issues. However, according to the second level stakeholders a lower percentage of the budget should be

going to agriculture. Instead a higher percentage should be spend on energy generating issues. The EU budget is highly debated because of the inertia existing in the EU.

### 4.3 The future incentives

This part will discuss the opinion of the EP and the second level stakeholders concerning positive and negative incentives. The future incentives are the second part of the second stage of Model 1, translation of demands into proposals. The opinion of the Commission is not expressed on this matter because the interviews and the documents did not provide sufficient information to formulate a good vision of their opinion.

#### **4.3.1 The future incentives, according to the EP**

In paragraph, 4.1.2 and 4.2.2 incentives have already been briefly discussed. The opinion on negative incentives will be first discussed and in the second part the opinion on positive incentives will be discussed. The main concern of the political parties is the internal energy market. Negative incentives should be used to incorporate all the costs of production such as a taxation of CO<sub>2</sub> emission in the internal energy market. Carbon dioxide tax is a system where everything that is producing carbon dioxide will be taxed. This includes the idea that everything will be taxed equally. So oil, gas, coal, biomass, wind, and solar energy will be in equal competition. Therefore, the people can choose whatever they prefer. In addition, the producers can make their own choices. This form of negative incentives is according to most of the representatives of the European parties an effective tool to ensure a reduction of CO<sub>2</sub> emissions. However, this would have as a consequence that the EU would be less competitive because of the high energy costs for companies and consumers. Negative incentives have proven themselves as very good working measures; an example is the emission-trading scheme.

Positive incentives are not so widely embraced by the different political parties. *First of all*, they would disturb the internal energy market. However, for specific purposes the different political parties see great use for positive incentives. Positive incentives in the field of energy generation should be used to promote research and development of techniques. Other reasons why positive incentives can be very useful are: to ensure commitment, to take away bottlenecks, for demonstration, to ensure smooth and quick adoption of legislation. The representatives of the EU parties expressed that when positive incentives are used they should be limited in time.

Moreover, according to a majority of the representatives, positive incentives to promote usages of techniques should, in time, be reduced to zero. There are representatives of European parties who think that the EU should not be so actively involved in positive incentives. Moreover, they believe that legislation in this area should come from the EU. Incentives used should be arranged by the member states themselves, because that would be the most efficient and honest way.

### **4.3.2 The future incentives, according to the second level stakeholders**

There is a clear division between the different groups concerning the use of positive and negative incentives. One part of the interest groups were more in favour of positive incentives because they had strong believe that positive incentives are the most efficient way to achieve the goals set. The other part of the stakeholders felt that positive incentives are disturbing the market, and are therefore inefficient. Both groups believed that positive incentives should be limited in time.

Almost all groups support negative incentives, in the form of carbon dioxide tax, because it should lead to a total open liberal market, which would lead to the most optimal solution. However, they mentioned three main problems with CO<sub>2</sub> emission tax. *First*, it is hard to set a fair price for carbon dioxide emission. *Second*, it is hard to set for every product a CO<sub>2</sub> emission norm. *Third*, it would make the EU less competitive. Because the prices will rise for the consumers, this causes the prices of labour to rise and therefore all the different resources will be subjected to additional taxation.

## **4.4 Conclusion**

This chapter focussed on the third sub research question: “*What will be the most likely future EU policy scenario in the field of energy generation?*”. The answer to this question corresponds with stage 3 of Model 1: the policy process procedure, described in paragraph 2.1, adoption of proposals.

The most likely scenario for the EU goals is: *first*, the 20%, 20%, and 20% goals by 2020 will be maintained, even though the stakeholders were sceptical towards these goals. This is a typical example where practicality stands against desirability, as discussed in paragraph 2.5. The EU is currently in situation 2 and the stakeholders want the EU to be in situation 3. *Second*, the EU has set a more leading role in the world on this field as its primary goal. *Thirdly*, the EU will ensure a better working internal market.

It is to be expected that legislation will be the basis of future policies. The role for incentives would be to ensure smooth and quick adoption of legislation and to reach specific goals. Information in the policy mixture will predominantly be used to change the behaviour of the consumers and used to raise more awareness for issues. The policies will become more predictable and consistent in time, without loss of its dynamics. *"The law must be stable, but it must not stand still."*<sup>22</sup>

The most likely scenario for the future EU is: *first*, policy in the form of legislation to encourage improvement of grid access and removal of barriers. Almost all of the stakeholders saw importance in further development of this. *Second*, the EU will develop policies in the form of legislation to improve the effectiveness of the emission trading scheme. The EU will take measures that will ensure an increase of the price of emission rights. Moreover, the EU will strongly promote the use of the emission trading scheme. All the stakeholders saw large potential in the emission trading scheme. *Third*, the EU will make policies which will further promote R&D through positive incentives and demonstration projects. R&D was seen as very important by all stakeholders. Moreover, they felt that incentives and demonstrations are the best way to promote R&D. *Fourth*, positive incentives in the form of grants will be raised in the short run to meet the 20%, 20%, and 20% goals by 2020. These grants will be on renewable energy sources, energy saving projects and CO<sub>2</sub> emission reduction programs (almost completely generated by the member states self). On longer terms the incentives in the form of grants will diminish for these projects and will gradually be replaced by negative incentives. Below is explained why this will be the most likely scenario even though a majority of the first and second level stakeholders mentioned that they were not fond of positive incentives.

In general there are two future scenarios probable. In the first case, besides the EU other countries around the world will set similar goals. This implicates that the impact of the goals set by the EU will have a worldwide effect. In addition the competitive value of the EU will not change. In the second case, other countries will not set as stringent goals as the EU. In this scenario the EU has two options:

1. The EU will try to reach the goals with negative incentives. The prices of energy will rise, which will make the EU consumers and companies worse off. Therefore, lead to a decline

---

<sup>22</sup> Pound, R. (1922), *Introduction to the Philosophy of Law*.

in the competitiveness of the EU. There will be a big chance the EU will reach its goals but will suffer a trade-off.

2. The EU will try to reach these goals with positive incentives. In this case it will be difficult for the EU to reach the goal of 20% saving; the other goals could be reached. On the other hand the EU will stay competitive.

In the light of the present economical situation and power balance there is very little hope for an international agreement. There is a strong resistance against increased energy prices due to negative incentives. Main fear is the loss of competitiveness. Especially second level stakeholders show a strong resistance against the negative incentives. Therefore, the most likely situation will be partial compensation in particular area's ensuring that the competitiveness will be secured. The introduction of such a compensation scheme is a lengthy process. An example is the complicated process to introduce the CO2 emission tax, as explained in paragraph 2.5 this is named "a siren call".

An increase in the budget in the EU for this field can only be expected when the EU will change its agriculture policies. This is not expected in the short run, because of "veto points" described in paragraph 2.6. However the individual member states will enlarge their budget in the case they fall short on the goals set.



## CHAPTER 5. FUTURE POLICY IN TRANSPORT

In this chapter, sub research question 4 "*What will be the most likely future EU policy scenario in the field of transport concerning energy?*" will be discussed. In this chapter the first three stages of Model 1: the policy process procedure will be discussed. The third stage of Model 1 will be the answer to sub research question discussed in this chapter. There will be an overview on what the future goals, policies, and incentives will be according to the first and second level stakeholders. Model 2: The EU policy process model describes the different levels of stakeholders, which have been used as the basis of this chapter. Opinions have been gathered from the first level stakeholders, the Commission, the EP and second level stakeholders (lobby and interest groups) through structured interviews, Figure 4: *The EU policy stakeholders in the field of transport concerning energy* and appendix 1 give an overview of these first and second level stakeholders. The first paragraph will elaborate on the opinions on the future goals in the field of energy generation. The second paragraph, will discuss the opinions on the future policies in the field of energy generation. In the third paragraph, the opinions on the future incentives in the field of energy generation will be discussed. The last paragraph of this chapter will give the conclusion concerning the sub research question.

### 5.1 The future goals

The future goals are the second part of the first stage of Model 1 *demand for policy*. In Model 2, which is presented in paragraph 2.2, there are four different first level stakeholders mentioned. However, not all of these are committed to share their opinion openly. Therefore, the choice is made to look at the opinion of the EP and the Commission, each of these will be discussed in their own paragraph. Of the second level stakeholders, many different lobby and interest groups and associations have been interviewed.

#### **5.1.1 The future goals set by the EU, according to the Commission**

In general, there are now three goals set which should be taken into account when the new policies in the field of transport concerning energy are analysed:

1. Taking global action,
2. Enhancing energy efficiency,

### 3. Developing technology (Council of the European Union: 2007).

Besides these general goals the Commission has set more specific goals: *first*, to decrease the usage of cars and promote alternative cleaner transport. *Second*, the Commission has set binding targets to reduce car emissions to set a threshold of 120g of CO<sub>2</sub>/km by 2012. *Third*, it will try to address issues like vehicle labelling and the usage of air-conditioning and tires (European Commission: 2006f). *Fourth*, the 5,75% target for biofuels as contribution to the total fuel consumption by 2010 set on basis of directive 2003/30/EC. The fourth is unlikely to be met unless current policies are strengthened. *Fifthly*, in 2005, bio-diesel accounted for 81,5 of total biofuel production in the EU, while bio-ethanol accounted for 18,5. The Commission wishes to set a minimum target of 10% for biofuels for 2020. This target will be accompanied by an amendment to directive 98/70/EC on fuel quality, in order to include the contribution made by biofuels. However, the binding character of this target is "subject to production being sustainable" and to "second-generation biofuels becoming commercially available" (European Commission: 2007a). *Sixthly*, the Commission will also propose measures to promote and encourage an incentive/support system for biofuels and the use of public procurement, particularly in the transport sector (European Commission: 2007a).

#### **5.1.2 The future goals set by the EU, according to the EP**

The overall opinion of the different party representatives of the EP was that the most important goals in the transport concerning energy are: environment protection, mobility, and limiting climate change. These goals could be linked to the 20%, 20%, and 20% goals by 2020. Other goals that were predominantly mentioned: improving the fair competition between different forms of transport, more co-modality, ensure worldwide commitment to tax transport for its CO<sub>2</sub> emission, change the behaviour of the users of transport, better fuels, and cleaner performance of the transport vehicles. The representatives of the EU parties believed that a fairer competition between the different forms of transport should lead to a cleaner transport mix and better co-modality.

Furthermore, the representatives of the EU parties expressed that the EU should focus on infrastructural investments. Because infrastructure is a major bottleneck, this is causing major non-necessary CO<sub>2</sub> emissions. Bottlenecks that should be resolved are: traffic jams, non cross-border compatibility, incapable railway tracks for the planned transport.

Almost all representatives of the EU parties felt that the 20%, 20%, and 20% goals by 2020 set by the EU were too ambitious and ambiguous for the transport industry. Transport is still growing and transport is an essential part of a growing economy. These goals can be reached however; the price that should be paid for it is almost unbearable for the EU's companies and citizens.

### **5.1.3 The future goals set by the EU, according to the stakeholders**

The majority of the interest groups mentioned that: *first*, the most important goals are the 20%, 20%, and 20% goals by 2020. Especially the energy savings 20%, carbon dioxide reduction 20% are of importance of the transport industry. *Second*, there will be a norm for the average emission of carbon dioxide per car. The idea is that all the new cars should comply with an average norm per car producer. *Third*, the goals are set in such a way by the EU that a modality shift is promoted. *Fourth*, there will be EU goals to improve the usage and production of biofuels. Biofuels are an alternative for diesel and gasoline, by using more biofuels the energy dependency will be reduced. *Fifth*, the EU will use carbon dioxide taxation. The idea of a carbon dioxide tax is that every form of transport has to pay a certain tax for its CO<sub>2</sub> emission. *Sixth*, the EU will set goals to reduce emission on other than CO<sub>2</sub> emission.

The opinions of the majority of the stakeholder concerning the goals set by the EU were

- statements by the EU are political based;
- goals set by the EU will not be reached;
- problems are global and therefore there is not so much the EU can do, especially without losing its competitiveness;
- carbon dioxide reduction will not come from transport even though transport will be more efficient and pollute less; the total amount of transport will grow;
- biofuels will not be the answer in the long run.

## 5.2 The future policy

The opinions of the first and second level stakeholders will be discussed on the matter of the future policy. The opinions on the future policies are the first part of the second stage of Model 1, translation demand in to proposals. There will be gone into the time period and the dynamics of the policies. Furthermore, there will be focused on the policy mixture; legalization, information, incentives. In addition, the policies as the different stakeholders would like to see.

### **5.2.1 The future policy, according to the Commission**

The transport industry will have to apply an active energy savings policy and diversification in favour of non-polluting energy (European Commission: 2001). The EU should build on the Strategy for Biofuels<sup>3</sup> (European Commission: 2006a). The Commission notes that taxation is a powerful tool for providing incentives. Moreover, the Commission encourages taxation of private cars according to their CO<sub>2</sub> emission levels. It also highlights the potential for using tax credits as incentives for companies and households. Furthermore the Commission states that change in the consumer behaviour is the key to success. To do so the Commission will plan a number of education measures to raise public awareness of the importance of energy efficiency, including education and training programmes on energy and climate issues (European Commission: 2006f).

### **5.2.2 The future policy, according to the EP**

The representatives of the EU parties expressed that legislation is the most important policy instrument in crafting policies in the field of transport concerning energy. Ensuring commitment to the goals should be done through a combination of positive and negative incentives. These incentives should be carefully used because when used incorrectly they will do more wrong than they do right. When looking at policies almost all parties mentioned consistency and predictability to be very important aspects. Nevertheless, they argue that the policies should not be rigid but rather dynamic. In addition, policies should give clear-cut guidelines to citizens, companies, and countries.

Legislation should especially be used to improve the reduction of CO<sub>2</sub> emissions by transport vehicles. This will be in the form that there will be average maximum for CO<sub>2</sub> emission of cars. For freight transport the EU norms that are already active in the EU should be more elaborated. Further the features of the policies instruments should be used to ensure a CO<sub>2</sub> emission tax for transport. It would ensure that all the different forms of transport would be in fair competition with one another. This form of fair competition uses positive incentives to change modality and negative incentives for CO<sub>2</sub> emission control. These incentives will be subjected to a more in-depth discussion in paragraph 5.3.

### **5.2.3 The future policy, according to the second level stakeholders**

All the second level stakeholders supported the opinion that any policy starts with legislation. However, the problem with legislation is that it is always lacking behind. In addition, it does not promote taking a leading role. Moreover, legalization is often too complicated, and makes the administrative burden even bigger. Therefore, to make the policy work there should be made use of positive incentives to smoothen the transition. Especially small and medium sized enterprises are in need of this kind of policy, because they do not have the same long term strategic planning compared to larger companies. Almost all of the interest groups expressed the opinion that predictability is a key issue of policies. However, the second level groups further down the supply chain were less interested in predictability. The reason why the stakeholders believed that predictability is essential is: *first* it improves the accuracy of the calculation of the NPV. *Second*, long-term policies give guidelines on how things will develop in the future. This gives clear signals to companies and consumers.

The EU policies should be: *first*, the EU policies will set norms to reduce emission other than CO<sub>2</sub> emission. This will be in the form of Euro 6 and 7 emission norms. These norms are follow-up norms on euro 1 to 5 which regulate the pollution in the freight transport sector. *Second*, there should be a policy towards a CO<sub>2</sub> emission tax for transport. *Third*, there should be legislation that should improve the reduction of CO<sub>2</sub> emissions by transport vehicles. *Fourth*, the policies should be towards more C\co-modality.

The budget spent on R&D in the car industry is already relatively high. The stakeholders were in favour of a bigger budget. However, a bigger budget could mean tighter rules or money will be derived from other parts of the budget. The second level stakeholders said that if there would be a bigger budget, the extra money should be spent on infrastructure, because this is where the profits would be the highest.

## **5.3 The future incentives**

This part will discuss the opinion of the EP and the second level stakeholders concerning positive and negative incentives. The opinions on the future incentives are the second part of the second stage of Model 1, translation of demands into proposals. The opinion of the Commission is not

expressed on this matter because the interviews and the documents did not give enough information to form a good view of their opinion.

### **5.3.1 The future incentives, according to the EP**

In paragraph, 5.1.2 and 5.2.2 incentives in the field of transport concerning energy have already been super visually discussed. Major positive incentives go to the R&D part of transport to ensure better engines, less air resistances, cleaner exhaustion, and the production of more fuel efficient cars. Moreover, a majority the representatives of the EU parties expressed that positive incentives are a good way to ensure quick adaptation of regulations

Negative incentives could be used to incorporate all the cost of production such as taxation of CO<sub>2</sub> emission. This form of negative incentives is mostly mentioned in the form of CO<sub>2</sub> emission tax. This taxation is in principal a very potential instrument however its applicability for the EU will be much harder. Another point mentioned is that the policies to improve infrastructure investments will be really hard and ineffective to arrange them through legislation. This offers a perfect opportunity for the EU to use positive incentives. These positive incentives could be in the form of co-financing.

There were representatives of the EU parties who toughed that the EU should not be so actively involved in positive incentives. Member states themselves should decide on these matters, because that would be the most efficient and honest way.

### **5.3.2 The future incentives, according to the second level stakeholders**

At present the rail, road, water and air transport are competing but not on even terms, where the rail industry has positive incentives, the air transport is free of taxation and the road transport has extra taxation.

*Firstly*, there is a strong interest to make all the different incentives fairer. *Secondly*, a part of the incentives are used to make the less polluting ways of transport more competitive. *Thirdly*, the second level stakeholders expressed that they believed that negative incentives would be very unpopular with consumers. The politicians do not want to upset the consumers when they know there will be an election soon. In addition, with 27 states in the EU there is always one country with a pending election. This is why negative incentives could be seen as “a siren call” because of “veto points”. *Fourthly*, incentives for quick adoption of legislation and incentives to promote R&D were seen as positive thing. *Fifthly*, the use of incentives for the promotion of co-modality

was seen as a good thing. This goal one of the view process instead of not target orientated goals, as described in paragraph 2.7. *Sixthly*, incentives should be used to promote big infrastructural projects and tackle bottlenecks and cross border problem. *Seventhly*, the stakeholders were overall a bit anxious with the CO2 emission taxation. If the CO2 emission taxation be an additional taxation of the industry they were adamantly against. However, if the CO2 emission taxation would come instead of the present taxation of the industry they supported the idea. But only if the total amount of taxation would stay the same. Otherwise the competitiveness of the EU as a whole would be at stake.

## 5.4 Conclusion

In this chapter, there has been focussed on the fourth sub research question: “*What will be the most likely future EU policy scenario in the field of transport concerning energy?*”. The answer to this question is stage 3 of Model 1, presented in paragraph 2.1, adoption of policy.

The most likely scenario for the goals is: *First* the 20%, 20%, and 20% goals by 2020 will be by far the most important goals for the EU. Even though, the EU will most probably not reach them in the transport sector. This is a clear example of “a siren call” as mentioned in paragraph 2.5. Moreover, most of the second level stakeholders believed the EU is focussing too much on outcome and target, where the EU should focus on the process and impact. This is more detailed described in paragraph 2.7 as viewed in table 2. *Second*, there will be goals set to minimize exhaustion per car. *Third*, another goal will be that the EU will take a more leading role in the world. *Fourth*, the EU will reset goals for biofuels. (Too many stakeholders were concerned with different consequences of the production of biofuels) *Fifth*, another goal of the EU will be more co-modality. A majority of the stakeholders believed that a modality shift should be co-modality. The future EU policies will become more predictable and consistent in time, without losing their dynamics. The most likely scenario will be that legislation will be the basis of policies. All the different parties believed that this would be one of the key elements of policies to ensure success. The most likely scenario of the future EU policies is: *first*, the EU will make policies to promote more infrastructural projects. These policies will focus on tackling the bottlenecks and to ensure easier co-modality. These projects will be promoted through positive incentives. *Second*, the EU will set policies which set a minimum of maximize exhaustion of fumes per car producer this through legislation. There will be started with a threshold of 120g of CO2/km by 2012, these will

be tightened every couple of years. (Almost none the stakeholders believed this will be a good policy, however the alternatives have failed. Moreover this policy is already passed) *Third*, the EU will continue building on the policies for biofuels. The EU member states will use positive incentives and remove barriers on the short notice to reach these targets. On longer terms these positive incentives will be gradually abolished. Moreover, the goals for biofuels are expected to be lowered if biofuels do not become more environmental friendly. *Fourth*, EU norms on other emissions besides CO<sub>2</sub> emissions will be set through legislation. The smooth adoption of these norms will be done through positive and negative incentives. This process is already going on for a considerable time and most parties felt positive concerning these policies. *Fifth*, the EU will continue policies which stimulate R&D. This stimulation will be done through positive incentives in the form of grants. *Sixth*, the introduction of a policy concerning a CO<sub>2</sub> emission taxation has two possibilities:

*The first case*, other countries besides the EU will set similar CO<sub>2</sub> emission taxation for transport. In this case, this would mean the impact in the world will be much bigger. Secondly, because other states will join there will be a fair competition between these countries.

*The second case*, the EU will be the only one with CO<sub>2</sub> emission tax for transport. In this case there are two options: *First*, the CO<sub>2</sub> emission taxation for transport will be without compensation. *Second*, the CO<sub>2</sub> emission taxation will be compensated. This last one would not harm the EU competitiveness and would contribute the most in reaching the environmental goals. However this last one will be very hard in practice and a very costly administrative system.

In the light of the present economical situation and power balance there is very little hope for an international agreement. Moreover, with a complete CO<sub>2</sub> emission taxation system there would be a lot of administration costs. In addition, it would make the prices of transport higher. Furthermore, the competitiveness of the EU would be damaged because of these high prices of transport. The different stakeholders, especially the second level stakeholders oppose against loss of competitiveness. In addition, there is a lot of inertia, as described in paragraph 2.5, which holds back the introduction of a CO<sub>2</sub> emission taxation system. Therefore, the most likely will be partial CO<sub>2</sub> emission taxation for freight transport with some compensation in particular areas.

Budget improvement can be expected for infrastructural projects. However, a substantial enlargement of the budget can only be expected when the EU will change its agriculture policies. This is not expected in the short run, because of “veto points” described in paragraph 2.6.



## CHAPTER 6. CONCLUSION

The first paragraph of this chapter will be used to answer the main research question. The second paragraph will be a reflection on the research. In the third and final part of this chapter, several remarks and recommendation concerning this thesis will be given.

### 6.1 Discussion

The goal of this research is to find an answer to the research question “*What will be the new EU policy and the subsequent incentives to achieve the goals set in the fields of energy generation and transport concerning energy?*”. Four sub research questions have been used to answer the main question. Each of these sub questions have been discussed in-depth in their own chapter. Chapter one has discussed the following four areas: the research objectives, the methods, the fields of research, and the constituent of this research.

The first sub-research question is “*What will be the policy process the EU policies in the field of energy generation and transport concerning energy have to go through?*”. Model 1 the policy process model shows the procedure a proposal has to go through before it can be adopted. The Commission initiates the proposals for EU policies. However, also the European Parliament and the council have, under the co-decision procedure, the ability to redesign the policies proposed by the Commission. There are four stages in Model 1: demand for policy, translation of demands into proposals, adoption of policy proposals, and implementation. Model 2: the EU policy process makes a clear description of the different forces that are active on the policy process. The first level stakeholders are formed by the Commission, EP, the Council and epistemic groups. The second level stakeholders are formed by lobby and interest groups, which directly and/or indirectly influence the first level stakeholders. In this model also incorporates; inertia, practicality versus desirability, and goal formulation.

The second sub-research question is “*What are the present EU policies programmes and the present incentives in the field of energy generation and transport concerning energy?*” The four most important programmes which are active within the EU in the field of this research: Marco Polo, Life +, CIP, and FP7 have been discussed. First, positive opinions were expressed on programmes, which focus on R&D such as FP7. Most stakeholders saw a key role in R&D. Second, most of the second level stakeholders were sceptic concerning Life-programme. The

Marco polo programme is concerned with promoting a modality shift. A majority of the stakeholders believed that the programme should promoting co-modality, and ensuring equal competition. The CIP was very little mentioned by the stakeholders, because it is relatively new. Overall, it can be concluded that there is much demand for improvement for the present EU programmes.

The third sub-research question is: “*What will be the most likely future EU policy scenario in the field of energy generation?*”. The most likely scenario will be that legislation will at be the basis of policies. The role for incentives would be to ensure a smooth and quick adoption of legislation and to reach specific goals. Information in the policy mixture will predominantly be used in changing the behaviour of the consumers and raising more awareness for the energy and environmental issues. The policies will become more predictable and consistent in time, without losing its dynamics.

The most likely scenario for the policies is described by four policies. *First*, there will be a policy in the form of legislation to encourage improvement of grid access and removal of barriers. *Second*, the EU will make policies in the form of legislation to make the emission trading scheme better working. *Third*, the EU will make policies which will further promote R&D through positive incentives and demonstration projects. *Fourth*, positive incentives in the form of grants will in the short term be raised to reach the 20%, 20%, and 20% goals by 2020. These grants will be on renewable energy sources, energy savings projects and CO<sub>2</sub> emission reduction programs (almost completely generated by the member states themselves). On longer terms the incentives in the form of grants will diminish for these projects and will gradually be replaced by negative incentives.

In the light of the present economical situation and power balance there is very little hope for an international agreement on CO<sub>2</sub> emission reduction. Moreover, there is also a strong resistance against higher energy prices. In addition, there is much resistance against the lost of competitiveness because of the high energy prices. Therefore, the most likely scenario will be a partial compensation in particular area’s ensuring that the competitiveness will not be damaged. Moreover, the introduction of such a system is a lengthy process.

A budget enlargement of the EU for the transport industry can only be expected when the EU will change its agriculture policies. However the individual member states will enlarge their budget in the case they fall short on the goals set.

The fourth sub research question: “*What will be the most likely future EU policy scenario in the field of transport concerning energy?*”. The policies will become more predictable and consistent in time, without losing their dynamics. The most likely scenario will be that legislation will be the basis of policies. The role for incentives would be to ensure smooth and quick adoption of legislation and to reach specific goals. Information in the policy mixture will mainly be used to change the behaviour of the consumers and used to raise more awareness for issue.

The policies will be: *first*, the EU will make policies to promote more infrastructural projects. These policies will focus on taking the bottlenecks away and to ensure easier co-modality. These projects will be promoted through positive incentives. *Second*, the EU will set policies, which set maximum CO<sub>2</sub> emission per car-producer, through legislation. There will be started with a threshold of 120g of CO<sub>2</sub>/km by 2012, these will be tightened every couple of years. (Almost none the stakeholders believed this will be a good policy, however the alternatives have failed. Moreover this policy has already been passed) *Third*, the EU will build on the policies for biofuels. The EU member states will use positive incentives and remove barriers on the short notice to reach these targets. On longer terms these positive incentives will be gradually abolished. *Fourth*, EU norms on other emission besides CO<sub>2</sub> emissions will be set through legislation. The smooth adoption of these will be done through positive and negative incentives. *Fifth*, the EU will continue policies which stimulate R&D. This stimulation will be done through positive incentives in the form of grants. *Sixth*, the CO<sub>2</sub> emission taxation which will be more in-depth discussed below. In the light of the present economical situation and power balance there is very little hope for an international agreement. Furthermore, with a complete CO<sub>2</sub> emission taxation system there would be a lot of administration costs. In addition, it would make the prices of transport higher. Moreover, these high prices of transport will damage the competitiveness of the EU. There is too much resistance against this system because of the loss of competitiveness to be introduced in the short run. There is a lot of inertia, as described in paragraph 2.5, which holds back a CO<sub>2</sub> emission taxation system. Therefore, the most likely will be partial CO<sub>2</sub> emission taxation for freight transport with some compensation in particular areas.

Budget improvement can be expected for infrastructural projects. However, a substantial enlargement of the budget can only be expected when the EU will change its agriculture budget. This is not expected in the short run, because of “veto points” described in paragraph 2.6.

## 6.2 Reflection

In this paragraph the different choices concerning this thesis will be reflected on. One of the most important choices made, were the research methods used in this research. The decision to only interview representatives of the Dutch European political parties has turned out very well, because, most of these parties were willing to cooperate with this study. By using these parties almost the whole European Parliament spectrum has been taken into account.

The decision not to interview the Council can be debated. Their opinion would have contributed much to this thesis by ensuring broader perspective on the scenarios. However, the composition of the council changes so often, that this opinion would be a snapshot. Secondly, it seemed to be tough to get enough members of the Council willing to cooperate with this study. In conclusion, this research could have benefited if the opinion of the council would have incorporated, if it was less restrained in time and resources it.

The decision not to use quotations and citations of the structured and semi-structured interviews will be discussed. A big disadvantage is that the thesis is not as confronting as it could have been if direct quotations and citations would have been used. However, because of the methods used the interviewees were very open and honest during the interviews. Looking back this has been an efficient and sufficient method of extracting primary data.

The decision to use a systematic system to judge the secondary data, has proven itself very worth full, because there is a lot of contradicting information and on top of this opinions were placed as facts in papers.

The choice has been made to research the CIP programme, however it turned out that most stakeholder did not have an opinion on the CIP programme. Therefore, it can be debated that the CIP programme should not have been incorporated in this research. However, this implicates that the researcher intervenes with the end results. This should never be the case, so therefore this programme should be in this study.

This study does not offer detailed analyses, which specific technical solutions will be the most probable future scenario. Although this is important and interesting to explore, it would take another sort of study. This study should be done through another theoretical basis and other interviewees should be used.

## 6.3 Recommendations

It was remarkable to note that most people are very concerned about the degrading environment; however they are not willing to make a sacrifice or change their behaviour. As long as this attitude towards the environment does not change a solution to the energy and environment problems faced, seems far out of reach. It is the researcher's opinion that the EU should set this change as one of their main focuses. An interesting part for further research would be: what policies can be expected from the EU and national governments to change the consumers willingness to sacrifice for the environment. This might offer very interesting opportunities for PNO consultants.

The conclusion of this thesis gives a clear picture on the future scenarios for the EU in the fields of research. Many new grants will arise in the coming years to improve the energy production from renewable sources and reducing the CO<sub>2</sub> emission. In the long run these grants will be diminished and PNO could better focus on grants in the field of R&D and demonstration projects. If PNO Consultants ensures to stay well informed on these subjects they it might create an advantage to other players on the market. If PNO Consultants also would be able to anticipate to the policy put forward by the EU, they will have excellent business opportunities in these fields, which could become long term market drivers.

The interviews with the representatives of the parties of the EP indicate that they had no knowledge on the performance of the programmes in the EU. This might indicate that the Dutch EP parties are not so interested in the different programmes. This is rather strange because these programmes represent a big amount of the total budget of the EU. Moreover, the programmes are directly visible form of the EU for the citizens and companies. It might be great importance and interest to do a follow up study on. Such a research could than focus on the next questions: Why are the Members of the European Parliament not aware of the performances of the EU programmes? Does the limited knowledge of the Dutch MEP on the EU programmes have negative influences on the amount of grants received?

The two field of research have shown remarkable resemblances in their scenarios. It might be an interest follow up research to analyse if this is a trend on all EU policy field or if it is just a trend on energy related fields. Is the same trend visible in all the different EU policies fields?



In the reflection is mentioned that interviews with the council would have contributed to this research. Therefore a follow up study could try to get a clear picture on the councils opinion and show if this opinion will drastically changed the future scenarios as predicted in this thesis.

## REFERENCES.

- Amburgey, T. L., Kelly D. and Barnett W. P. (1990), “Resetting the Clock: the Dynamics of organizational change and failure” *Academy of Management Best Papers Proceedings*, pp. 51-53.
- Baarda, D. B. and Goede M. P. M. (2000), *Basisboek methoden en technieken*, Houten, Stenfert Kroese, (2<sup>nd</sup> revised edition, 6<sup>th</sup> edition).
- Cooper, D. and Schindler, P. (2003), *Business Research Methods*, Boston, McGraw-Hill Irwin.
- Council of the European Union (2007), “Presidency Conclusions” *Brussels 8/9 March 2007* (Art. 7224/1/07 REV 1).
- Esping-Anderson, G. (1996), “After the Golden age? Welfare state Dilemmas in a global economy” *Sage publications*, London thousand Oaks New Delhi, pp. 4, 5, 24, 25.
- European Commission (2001), *Green Paper: Towards a European strategy for the security of energy supply* COM (2000) 769 final.
- European Commission (2004), “Regulation (EC) no 1682/2004 of the European Parliament and of the Council of 15 September 2004”, *Official Journal of the European Union*, Brussels, 5.10.2004.
- European Commission (2005), *The support of electricity from renewable energy sources*, Communication from the Commission, Brussels, 7.12.2005, COM (2005) 627 final.
- European Commission (2006a), *A European Strategy for Sustainable, Competitive and Secure Energy*, Brussels, 8.3.2006, COM (2006) 105 final.
- European Commission (2006b), *In Figures Part 3: Transport Energy & Transport 2006*, Directorate-General for Energy and Transport.
- European Commission (2006c), “Establishing a Competitiveness and Innovation Framework Programme (2007 to 2013)”, *Official Journal of the European Union*, 24. 9.11.2006, DECISION No 1639/2006/EC, pp. 20.
- European Commission (2006d), “Decision no 1982/2006/ec of the European Parliament and of the Council of 18 December 2006”, *Official Journal of the European Union*, 30.12.2006.
- European Commission (2006e), “Regulation (Ec) No 1692/2006 Of The European Parliament and of the Council of 24 October 2006”, *Official Journal of the European Union*, 22.9.2005.
- European Commission (2006f), *Action Plan for Energy Efficiency: Realising the Potential*, Communication from the Commission, Brussels, 19.10.2006, COM (2006) 545 final.

- European Commission (2007a), *Renewable Energy Road Map. Renewable Energy in 21<sup>st</sup> Century: Building a more Sustainable Future*, Communication from the Commission, 17.1.2007, COM (2006) 848.
- European Commission (2007b), *Green Paper: on Market-based Instruments for Environment and Related Policy Purposes*, Brussels, 28.3.2007, COM (2007) 140 final.
- European Commission (2007c), *Green Paper: Follow-up Action, Report on Progress in Renewable Electricity*, Brussels, 10.1.2007, COM (2006) 849 final.
- European Commission, (2007d), *An Energy Policy for Europe – the Need for action*, Directorate-General for Energy and Transport, (leaflet).
- European Commission, (2007e), *Eurobarometer: Europeans Support Greater EU Action on Energy and Climate Change*, Brussels, 5.3.2007, (IP/07/280).
- European Commission, (2007f) *Panorama of Energy, Energy Statistics to Support EU Policies and Solutions*, Luxembourg, Publications Office, pp. 166.
- European Parliament and the Council (2006), “Establishing a Competitiveness and Innovation Framework Programme (2007 to 2013)”, *Official Journal of the European Union*, 24. 10.2006, pp. 20 Decision No 1639/2006/EC.
- Fiorino, D. J. (1988), “Regulatory Negotiation as a Policy Process”, *Public Administration Review*, Vol. 48, No. 4, 08.1988, pp. 764-772 page 764.
- Grindle, M. and Thomas, J. (1990), “After the Decision: Implementing Policy Reforms in Developing Countries”, *World Development*, Vol. 18, No. 8.
- Haas, P. M. (1992), “Epistemic Communities and International Policy Coordination., *International Organization*, Winter 1992, vol. 46, number 1, Stanford, The MIT Press. pp. 1-36
- Henderson, P. E. (1977), “Two British Errors: Their Probable Size and Some Possible Lessons”, *economic papers*, pp.159-205.
- Hepbasli, A., Ozdamar, A. and Ozalp, N. (2001), “Present Status and Potential of Renewable Energy Sources in Turkey”, *Energy Sources*, Vol. 23, No. 7, pp. 631-648
- Jefferson M. (2006), *Sustainable energy development: performance and prospects*, *Renewable Energy*, Vol. 31, pp. 571–582.



- Mazey, S. & Richardson, J (2001), *Institutionalising Promiscuity: Commission Interest Group Relations In The EU*, In Fligstein N. Sandholtz stone sweet A. (eds), the internationalization of Europe, oxford: Oxford university press.
- Oliver P. (1980), "Rewards and Punishments as Selective Incentives for Collective Action: Theoretical Investigations", *The American Journal of Sociology*, Vol. 85, No. 6, pp. 1356-1375.
- Paz da, L. R. L., Silva da, N. F. & Rosa L. P. (2007), "The Paradigm of Sustainability in the Brazilian Energy Sector", *Renewable and Sustainable Energy Reviews*, Vol. 11, No. 7, September 2007, pp. 1558-1570.
- Pierson, P. (1998), "Irresistible Forces, Immovable Objects: Post-Industrial Welfare States Confront Permanent Austerity", *Journal of European Public Policy*, Vol. 5, pp. 539-560.
- Qian, Y. & Weingast, B. R. (1997), "Federalism as a Commitment to Preserving Market Incentive", *The Journal of Economic Perspectives*, Vol. 11, No. 4, pp. 83-92.
- Richardson J. (2006), *European Union Power and Policy-making*, Routledge, (3<sup>rd</sup> edition) pp. 6-7, 249, 259, 316-318, 352, 360, 361.
- Rose, R. (2005), *Learning From Comparative Public Policy. A practical Guide*, London New York Routledge.
- Sabatier, P. A. (1991), "Toward Better Theories of the Policy Process" *PS: Political Science and Politics*, Vol. 24, No. 2 (Jun., 1991), pp. 147-156.
- Santayana, G. (1924), *The Life of Reason or The Phases of Human Progress: Reason in Common Sense* 2nd ed., Charles Scribner's Sons, New York, pp. 284.
- Sundström, M. (2000), *A Brief Introduction: What is an Epistemic Community?* page 1, 4.
- Thompson, A. & Strickland, L. (2001), *Strategic Management Concepts and Cases*, McGraw-Hill international edition, 12<sup>th</sup> edition, pp. 295-300
- Veen-Groot van, D. B. & Nijkamp, P. (1999), "Globalisation, Transport and the Environment: New Perspectives for Ecological Economics", *Ecological Economics*, Vol. 31, No. 3, pp. 331-346.
- Weale, A., Pridham, G., Cini, M., Konstadakopulos, D., Porter, M., and Flynn, B. (2000), *Environmental Governance in Europe. An Ever Closer Ecological Union?* Oxford: Oxford University Press. pp. 42-47.

WCED (World Commission on Environment and Development) (1987), Our common future: the report of the World Commission on Environment and Development, Oxford: Oxford University Press.

### Websites:

- BP statistical review full report bookwork 2006, <http://www.bp.com>, retrieved on 2007-05-08.
- Energy Information Administration: <http://www.eia.doe.gov/>, retrieved on 2007-05-03.
- PNO consultants: [www.pnoconsultants.co.uk](http://www.pnoconsultants.co.uk), retrieved on 2007-05-07.
- PNO consultants: [www.pnoconsultants.nl](http://www.pnoconsultants.nl), retrieved on 2007-05-07.
- Report of the French Ministry of Finance and Economy 2003: [www.cea.fr](http://www.cea.fr), retrieved on 2007-04-05.
- The CIP programme: [http://ec.europa.eu/enterprise/enterprise\\_policy/cip](http://ec.europa.eu/enterprise/enterprise_policy/cip), retrieved on 2007-07-11.
- The EU budget: <http://ec.europa.eu/budget>, retrieved on 2007-04-22.
- The European Commission: <http://ec.europa.eu>, retrieved on 2007-06-18.
- The European Council: [http://europa.eu/european\\_council](http://europa.eu/european_council), retrieved on 2007-06-18.
- The European Parliament: <http://europarl.europa.eu>, retrieved on 2007-06-12.
- The life + programme: <http://ec.europa.eu/environment/life/>, retrieved on 2007-06-02.

## APPENDIX 1

	<b>Stakeholder:</b>	<b>Description:</b>	<b>Interviewee:</b>
1	ACEA	An association for European car manufactures.	Mister Zaffiro
2	BOVAG	An association concerned with mobility.	Mister Voorburg
3	Business Europe	Interest and lobby group for Industries and Employers.	Mister McGovern
4	CDA	Dutch political party, part of the European People's Party (Christian Democrats) and European Democrats a pan European party.	Mister van Nistelrooij, Member of European Parliament head of the environmental commission.
5	CEFIC	Organization representing the European chemical industry.	Director Transport and Logistics mister Verlinden
6	CU/ SGP	Dutch political parties, part of the independence / Democracy Group pan European party.	Assistants of mister Blokland, the member parliament and head of the environmental commission.
7	D66	Dutch political party, part of the Alliance of Liberals and Democrats for Europe a pan European party.	Miss in het Veldt Member of European Parliament
8	EC transport	European Commission concerned with transport	Mister Morgan, Member of Cabinet
9	Energiened	Association for energy generation.	Mister Hebben
10	ERT	45 CEO of the biggest multinationals in the EU.	Mister Kredler, Strategy Analyst
11	EURATOM	European institute for nuclear matters.	Mister van Goethem, D.G. of EURATOM
12	FIA	Worldwide federation of Motoring and Touring Clubs.	Mister Botman, Director General
13	Greenpeace	Environmental organization.	Miss Thies, EU Policy Campaigner
14	Groenlinks	Dutch political party, part of the Greens/European Free Alliance a pan European party.	Assistants of Mister Lagendijk Member of European Parliament
15	NOGEPa	The Netherlands Oil and Gas Exploration and Production Association.	Assistant Secretary Mister McGrane
16	NS	Dutch national Railway company.	Mister Oosterwijk, EU manager
17	OGP	International Association of Oil and Gas Producers.	Miss Raabe, Director EU Affairs
18	PVDA	Dutch political party, part of the Party of European Socialists a pan European party.	Miss Corbey , Member of European Parliament
19	Senternovem	Governmental Agent for assistance.	Miss. Kerkhof, Programme advisor of LIFE
20	SP	Dutch political party, part of the European United Left–Nordic Green Left a pan European party.	Mister Futselaar assistant of member of the European parliament of the SP
21	TLN	An association for transport and logistics in the Netherlands.	Mister Kramer, Manager European Affairs
22	VVD	Dutch political party, part of the Alliance of Liberals and Democrats for Europe a pan European party.	Assistants of Mister Manders, Member of European Parliament

## APPENDIX 2

Fuel shares in world primary energy use—1990, 2000, 2004 (%)			
	1990	2000	2004
Oil	37.1	33.8	32.8
Natural gas	18.7	20.9	21.1
Coal	24.3	22.2	24.2
Total fossil fuels	80.1	76.9	78.1
Nuclear	5.5	6.0	5.4
Traditional biomass	11.0	9.6	8.8
Large hydro	2.0	5.4	5.5
'New' renewables	1.4	2.1	2.3

Source: BP statistical review full report bookwork 2006, <http://www.bp.com>, retrieved on 2007-05-08.

## APPENDIX 3

Assessment of Member States' progress towards the 2010 target (%)

	Reference year (1997 or 2000)	Achieved penetration 2004/2005	Normalised penetration 2004/2005	Objective by 2010
Denmark	8.7	25.8 (2005)	27.3 (2005)	29.0
Germany	4.5	10.4 (2005)	10.8 (2005)	12.5
Hungary	0.7	4.4 (2005)	4.0(2005)	3.6
Finland	24.7	25.0 (2005)	25.4(2005)	31.5
Ireland	3.6	6.1(2005)	8.0 (2005)	13.2
Luxembourg	2.1	3.6 (2005)	4.0 (2005)	5.7
Spain	19.9	17.2 (2005)	21.6 (2005)	29.4
Sweden	49.1	53.2 (2005)	52.0 (2005)	55.2
The Netherlands	3.5	6.9 (2005)	6.5 (2005)	9.0
Czech Republic	3.8	4.8 (2005)	4.0 (2005)	8
Lithuania	3.3	3.7 (2004)	3.3 (2004)	7
Poland	1.6	2.8 (2005)	3.2 (2005)	7.5
Slovenia	29.9	29.1 (2004)	29.4 (2004)	33.6
United Kingdom	1.7	4.1 (2005)	4.2 (2005)	10.0
Belgium	1.1	1.8 (2005)	1.9 (2005)	6.0
Greece	8.6	9.1 (2005)	7.7 (2005)	20.1
Portugal	38.5	14.8 (2005)	28.8 (2005)	39.0
Austria	70.0	54.9 (2005)	57.5 (2005)	78.1
Cyprus	0.0	0.0 (2004)	0.0 (2004)	6
Estonia	0.2	0.7 (2004)	0.7 (2004)	5.1
France	15.0	11.0 (2005)	14.2 (2005)	21.0
Italy	16.0	15.3 (2005)	16.0 (2005)	25.0
Latvia	42.4	47.1 (2004)	43.9 (2004)	49.3

Sources: (European Commission: 2007c)

## APPENDIX 4

CO2 Emissions of different sources of electricity production							
Energy	Hydraulic	Nuclear	Wind	Photovoltaic	Gas	Oil	Coal
CO2 Emissions (g/kWh)	4	6	3–22	60–150	430	818	800–1050

Source: Report of the French Ministry of Finance and Economy 2003: [www.cea.fr](http://www.cea.fr), retrieved on 2007-04-05.