Final Report

Master's Thesis Project in Business Administration

"Market research towards renewable energy development in Europe"

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Management summary

The Raedthuys Groep is a Dutch company involved in the development of renewable energy projects in the Netherlands. The company is considering foreign market entry for several reasons. Barriers are experienced at the home market that put a cap on the growth of the company. Also, the company wants to expand its activities to other technologies within the renewable energy sector. Depending on the country's resources, they can focus on the Netherlands or a foreign country.
Although the company has no experience abroad and no knowledge of foreign markets, it is expected that the company's knowledge about project development in the renewable energy sector can make them successful at foreign markets. The company has selected five countries of the European Union they want to investigate because of existing leads in those countries. This Master's thesis is written for the Raedthuys Groep to answer the question *"Which of the selected countries has the best opportunities to start renewable energy projects in, and which recommendations can be given about entering the target market and the marketing approach?"*

The research framework that is prepared is based on a literature study and consists of five main steps:

1. Market screening and selection.
2. Internal analysis of the company.
3. External analysis of the foreign target market.
4. Choice of entry mode.
5. Deciding on the marketing approach.

Primary and secondary sources are used for the data collection in this research.

The target market is chosen through the execution of a Multiple Criteria Decision Analysis. Belgium, Germany, Greece, Poland the United Kingdom and the Netherlands were part of this analysis. From the results of this analysis it can be concluded that the countries of Western Europe are most favorable to enter. Germany has the highest score, but the market situation in Belgium is also promising. The bioenergy sector in Belgium is chosen by the company as the topic for further research. When comparing the scores of the foreign markets with the Netherlands, one can conclude that the Netherlands should be the preferred market for renewable energy development. The market environment is good and the Raedthuys Groep can profit from several home market advantages.

The environmental, market and production factors of the bioenergy sector in Belgium are analyzed. Information is gathered through interviews and the consultation of websites. From this analysis, the following conclusions can be made:

- The three regions of Belgium should be treated as separate markets because the development of the renewable energy sector is a responsibility of the regional governments. Large differences exist between the regions. This research has focused on Flanders and Wallonia. Brussels is eliminated on forehand because of its limited size and high urbanization degree.
- The influence of the regional government is large due to strict rules and regulations applicable to the development of projects.
- The Green Certificate system is the driving force behind the growth of the sector in Flanders and Wallonia. It is questionable if this subsidy system is very effective, because it does not guarantee the producer a fixed price for the produced energy.
- In both Flanders and Wallonia, the bioenergy sector is in its growth phase. New projects are expected to be built in the period 2010-2020 to contribute to the target of 13% energy from renewable sources in 2020 set by the European Union.

- Several project developers are active in Flanders and Wallonia, but no one has created a dominant position. The expected growth of the sector leaves opportunities for new entrants.
- Barriers are expected with regard to obtaining the necessary permits and the contracting of input sources. The larger the capacity of the production plant, the higher the expected barriers.
- The availability of input sources is limited in Flanders. The sector will rely on imports when shortages arise due to a growing demand.

The Raedthuys Groep has limited knowledge of the foreign market situation, language and culture. However, these factors are expected to be of great importance in the successful development of projects. Therefore, it is recommended to collaborate with a local partner through the establishment of a joint-venture or the acquisition of a local company.

In the field of project development, marketing activities should focus on the establishment of relationships with stakeholders. A power-interest matrix is created to identify groups of stakeholders that are involved in the development and exploitation of bioenergy plants. To the quadrant of key players belong governments on several levels, suppliers of biomass and installations, banks, landowners, energy companies and network operators.

The overall conclusion from this research is that the regions of Flanders and Wallonia offer potential for the development of bioenergy projects, although entering those markets is not expected to be easy. The influence of the regional government is large because of the applicable legislation and permit procedures. The industry has a reasonable attractiveness. It is advisable to focus on the development of small scale projects in collaboration with a local partner that has knowledge of the market.

The following recommendations can be given to the company:

- The company should reconsider if it really wants to enter foreign markets. The market screening has proven that the opportunities for the Raedthuys Groep in the Netherlands are good in comparison to the other countries. The company can profit from several home market advantages. To enlarge the company's project portfolio, future market research should focus on the home market to identify new opportunities.
- The company should make Germany a topic for further research. The Multiple Criteria Decision Analysis has shown that Germany can be a very interesting market for the Raedthuys Groep. The same is true for Wallonia. This thesis does not give a complete description of the situation in this region, because of language barriers.
- It is recommended to incorporate other countries of the European Union in the market screening stage and repeat it on a regular basis. Market situations can change over time and it is possible that other European countries offer chances for the development of renewable energy projects that are not yet identified.
- If the company decides to enter the region of Flanders, it is recommended to join branch organization Biogas-E. With regard to project development, the establishment of relationships and building a network in the foreign market is a requirement for success.
- Entering the market through a joint-venture with a local company is the preferred entry mode. In case of Wallonia, hiring a French speaking person is necessary to be active in this region and to collaborate with the local partner. The company should be aware of the cultural differences that are in place.

Preface

This Master's thesis project is carried out in order to graduate for the study Business Administration with a specialization in International Management and to obtain a Master of Science degree. The main goal of this Master's thesis was to apply theory to a practical case.

After finishing all Master courses, I started the search for an assignment at the beginning of 2009. My wish was to work on a project for a Dutch company that wants to explore foreign markets. Through the website of Integrand I found a vacancy for an assignment from the Raedthuys Groep. *'Exploring European markets for the development of renewable energy projects'* was the research topic, as the company is active in the renewable energy sector. To me, an interesting topic. Renewable energy is getting more and more media attention and is characterized by growing market due to the limited stock of fossil fuels and care for the environment.
It was possible to combine the company's wishes with the requirements of the university and I started with the project in March 2009.

Although it was not an easy task, I enjoyed working on the project. It was in line with my expectations and interests and very relevant to my study program. I learned a lot about the topic of renewable energy and project development and I could improve my research skills.

A lot of people were helpful to me during the research phase. I would like to thank all employees of the Raedthuys Groep for their cooperation and the nice time I had while working there. I wanted to thank Marcel Bovenmars and Marianne Kok for the supervision. I also wanted to thank Mr. Bliek and Mr. de Boer for their supervision from the university.

Haarle, February 01, 2010

Loes Jansen

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List of abbreviations

CHP	Combined Heat and Power
CWAPE	Commission Wallonne Pour l'Energie
DNO	Distribution Network Operator
EMIS-VITO	Energie en Milieu Informatie Systeem voor het Vlaamse Gewest and Vlaamse Instelling voor Technologisch Onderzoek
GWh	Gigawatt hour
MCDA	Multiple Criteria Decision Analysis
MWe	Megawatt electrical
MWh	Megawatt hour
OVAM	Openbare Vlaamse Afvalstoffen Maatschappij
SDE	Stimulering Duurzame Energieproductie
SME	Small and Medium Enterprises
TNO	Transmission Network Operator
TPE	Ton Petroleum Equivalent
VLACO	Vlaamse Compostorganisatie
VLAREA	Vlaams Reglement voor Afvalvoorkoming en –beheer
VLAREM	Vlaams Reglement betreffende de Milieuvergunning
VLIF	Vlaams Landbouwinvesteringsfonds
VREG	Vlaamse Reguleringsinstantie voor de Elektriciteits- en Gasmarkt

Chapter 1: Introduction

1.1 Background

The Raedthuys Groep was established in 1995 and is active in the field of renewable energy development. The Raedthuys Groep realizes renewable energy projects in the Netherlands focusing on wind energy en bioenergy. The Raedthuys Groep consists of a chain of companies that together have the availability over all the specialties involved:

- The development of renewable energy projects.
- Investments in renewable energy projects.
- The construction of renewable energy projects.
- The management of renewable energy projects.
- Insuring renewable energy projects.
- Supplying renewable energy.

The Raedthuys Holding consists of several b.v.'s and business units and employs a total of 29.3 FTE. The organogram of the company is presented in figure 1.

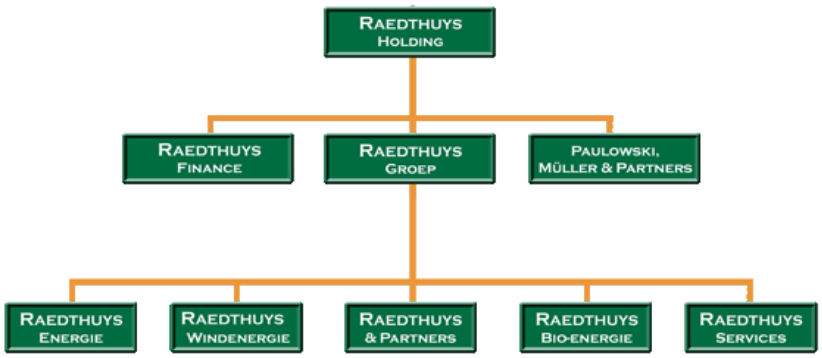


Figure 1: Organogram of the Raedthuys Holding.

- *Raedthuys Finance* is functioning as the company's 'in-house bank'. Activities consist of treasury management and the financing of renewable energy projects.
- *Paulowski, Muller & Partners* (PMP) is an insurance company with a specialization in renewable energy projects. PMP is a joint venture between the Raedthuys Holding (50%) and Vfu (50%). PMP is market leader in the Netherlands with an insured property of €600 million.
- *Raedthuys Energie* is responsible for the trade of electricity generated from renewable sources.
- *Raedthuys Windenergie* is responsible for the development of wind energy projects. This business unit has realized several projects in the Netherlands with a total capacity of 80 MWe.
- *Raedthuys and Partners* offers the opportunity to private investors to invest in renewable energy projects. From 1997 on, more than four thousand private investors have participated in renewable energy projects for a total amount of €160,000.000.
- *Raedthuys Bioenergy* is responsible for the development of bioenergy projects. Several projects are under development.
- *Raedthuys Services* focuses on the service and maintenance of projects that are in operation. Raedthuys services has also knowledge about construction management and the building of renewable energy plants.

The Raedthuys Group is active in the Netherlands. The company is exploring foreign markets but no projects are in operation outside the Netherlands.

1.2 Objective

The objective of this Master's thesis project is to investigate the opportunities for the Raedthuys Groep for the development of projects in other countries of the European Union (EU). The company wants to explore new European markets because they have experienced several barriers at the home market. The applicable subsidy system and strict legislation with regard to the development of projects put a cap on the growth of the company.
To be considered as future target market, a country should satisfy several conditions. The company is searching for a market with limited exposure to several kinds of risks. It is especially important that the country should rely on a reliable subsidy system for renewable energy to make the projects profitable. The legal framework should also enable the company to develop renewable energy projects. Therefore, the focus of the research should be on the existing subsidy systems in the foreign countries, the applicable legislation towards the development of projects, the risks involved for the company and the identification of stakeholders.
The market research will be carried out for five selected countries; Belgium, Germany, Greece, Poland and the United Kingdom (UK). The pre-selection of the countries is made by the Raedthuys Groep and is based on existing leads in those countries. It is expected that the market research will reveal chances for the company in one or more countries.

1.3 Problem statement

The Raedthuys Groep has no knowledge over foreign markets. Exploring European markets through market research is a method to identify foreign countries with a high market potential and a favorable external environment. The following aspects are considered in order to come to a well defined research question:

1. The Raedthuys Groep wants to explore new European markets for setting up renewable energy projects because they encounter barriers at the home market.
2. The most promising market for the company should be identified.
3. Projects to develop can be in wind energy, bioenergy or geothermal energy.
4. Recommendations about market entry have to be given.
5. Recommendations about the marketing approach have to be given.

The resulting research question is:
"Which of the selected countries has the best opportunities for the Raedthuys Groep to start renewable energy projects in, and which recommendations can be given about entering the target market and the marketing approach?"

1.4 Research strategy

The overall strategy in this Master's thesis project is carrying out deductive research followed by a research design step. In deductive research a literature study is carried out to identify theories that can be applied to the research topic. Following the literature study, a research framework is established. During the fieldwork, primary and secondary data are collected and analyzed. These findings are then used to draw conclusions, after which the solution can be developed.

Chapter 2: Theory and methodology

2.1 Introduction

Chapter two describes literature that can be applied to the topic of international market entry. A literature study is carried out to find theories and models that can contribute to a well funded answer to the research question. The methodology to execute the research is also described in this chapter.

Several authors have written about the topic of country selection and international market entry, which is the core of this Master's thesis project. Johnson et al. (2008) describe market selection and market entry as part of their international strategy framework. Ball et al. (2008) describe market screening as a method of market analysis and identifies the existing entry modes as a next step. Root (1994) has developed a framework for companies that want to enter foreign markets. This framework is presented in figure 2.

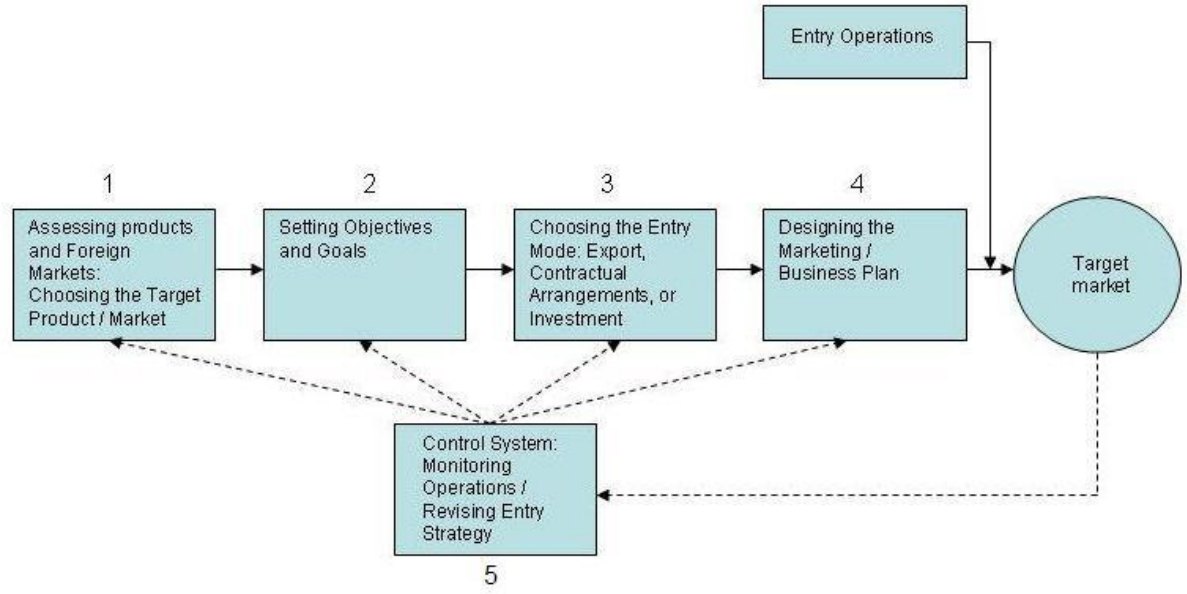


Figure 2: Root's model for international market entry.

Root's model makes clear that entering foreign markets requires decisions on the choice of (1) a target product/market, (2) the objectives and goals in the target market, (3) the choice of an entry mode, (4) the marketing plan to penetrate the target market and (5) a control system to monitor performance in the target market. To make those decisions, the following steps should be incorporated in the research.

1. Market screening and selection.
2. Internal analysis of the company.
3. External analysis of the target market.
4. Choice of entry strategy.
5. Deciding on the marketing approach.

Details are described in the remaining part of this chapter.

2.2 Market screening and selection

According to the literature described in the introduction of this chapter, market screening is the first step in the international market entry process. This section describes the theories and methodology applicable to this step.

2.2.1 Theory

Several authors have written about market screening. Based on their international strategy framework, Johnson et al. (2008), Ball et.al (2008) and Root (1994) describe in their books several analyzing techniques in which market characteristics and competitive characteristics of countries can be compared. Mirza et. al. (2007) and Painuly (2000) describe sector specific criteria based on which a choice for a particular market can be made.

Market characteristics

Market characteristics can be compared along the dimensions of the PESTEL framework, which is presented in table 1. This framework is a standard environmental analysis technique that is also relevant to the case of the Raedthuys Groep.

Factor	**Could include**
Political/regulatory	Political stability, taxation policies, international trade, corruption
Economic	Currency rates, economic growth, inflation
Socio-cultural	Cultural distance, language, workforce
Technological	Subsidies granted to the development of technologies, level of innovation, rate of technology obsolescence
Environmental	Environmental issues
Legal	Legal regime, intellectual property, the extent to which businesses can enforce contracts

Table 1: Elements of the PESTEL-analysis.

Root (1994) proposed the following factors regarding market/product selection and mode of entry, which can also be applied to this research project:

Choosing the Target Product/ Target Market	**Choosing the entry mode**
Product ➢ Ready market acceptance ➢ High profit potential ➢ Availability from existing production facilities ➢ Suitable for marketing abroad ➢ Necessary level of adaptation to target market *Market* ➢ Consumer/User profile ➢ Direct estimates of Market size ➢ Indirect estimates of market size ➢ Estimate Industry Market Potentials ➢ Estimating Company Sales Potential	*Internal factors* Product Factors ➢ Pre- and post-purchase services ➢ Level of differentiation ➢ Adaptation requirements ➢ Level of technology Resource/Commitment Factors ➢ Size ➢ Strategy ➢ Skills *External Factors* Target Country Environmental factors ➢ Political ➢ Economic ➢ Socio-Cultural

	➢ Geographical/Cultural distance Target Country Market factors ➢ Size of market ➢ Competitive Structure ➢ Marketing infrastructure Target Country Production factors ➢ Costs of economic infrastructure ➢ Costs, quality and quantity of raw materials, labor and energy Home country Factors ➢ Characteristics of domestic market ➢ Production costs ➢ Policies of the home government

Table 2: Factors in choosing the target product/market and entry mode.

Another general method for market screening is provided by Ball et al. (2008). Those authors describe country screening as a method of market analysis and assessment. *"This method permits managers to identify a small number of desirable markets for the company by eliminating those who are less attractive"* (Ball et al., 2008, p. 410). Screening is based on several environmental forces which can be placed in any order, depending on their level of importance. The forces are presented in table 3.

Screening Forces	**Could include**
Basic needs	Varies per company
Economic/Financial	Market size, market growth rate, etc.
Political/Legal	Entry barriers, political stability, profit remittance barriers etc.
Socio cultural	Language, religion, Hofstede dimensions, etc.
Competition	Number, size, and strength of competitors, pricing policies, distribution channels, etc.
Final selection	Often involves a field trip

Table 3: International market screening by Ball et.al. (2008).

Sector specific characteristics

When searching for more specific theories for selecting markets for renewable energy development, the study of Mirza et al. (2007) towards wind energy development in Pakistan is useful. In this study, several barriers are distinguished that can exist in a country towards the development of wind energy projects. These barriers are not country specific and also apply for other types of renewable energy. These barriers can serve as guidelines in answering the research question and are presented in table 4.

In his study 'Barriers to renewable energy penetration; a framework for analysis', Painuly (2000) also classified relevant barriers. Table 5 presents the barrier categories classified by Painuly.

Barrier	Could include
Institutional	Institutional support and arrangements, coordination within and between political stakeholders
Regulatory	Regulations with regard to renewable energy projects
Financial	Financial and fiscal incentives
Information and technology	General awareness, information about potential, technical information, education and data collection
Policy	Energy policies and plans, incentives, goals and potential projects

Table 4: Barriers in the development of renewable energy projects by Mirza et.al.(2007).

Barrier	Could include
Institutional	Legal/regulatory framework, financial incentives, macro-economic environment, involvement of stakeholders in decision making, R&D culture, private sector participation, professional institutions
Social, cultural and behavioral	Consumer acceptance, social acceptance
Market	Controlled energy sector, lack of information and awareness, access to technology, competition, market infrastructure, investment requirements
Economic and financial	Cost of capital, access to capital, economic viability
Technical	Standards and codes, skilled personnel, system constraints, training facilities
Socio cultural	Consumer acceptance, social acceptance
Other barriers	Government policies, environmental, risk perception, infrastructure

Table 5: Barriers in the development of renewable energy projects by J.P. Painuly (2000).

Competitive characteristics

The second step in assessing the relative attractiveness of markets relates to competition. Porter's five forces framework (Porter, 1980) is a useful tool. The five forces constitute an industry's 'structure' (Johnson et al. 2007) and consist of the following elements which describe together the attractiveness (profit potential) of the market:

- *Potential entrants.* Describes how easy it is for new entrants to enter the industry. The threat of entry depends on the extent and height of barriers that exist for new entrants. Seven major factors are described that can measure the attractiveness of the market for new entrants:
  1. Supply side economies of scale.
  2. Demand side benefits of scale.
  3. Customer switching costs.
  4. Capital requirement.
  5. Incumbency advantages independent of size.
  6. Unequal access to distribution channels.
  7. Restrictive government policy.
- *Substitutes.* Threat of substitutes refers to products or services that fulfill a similar function to the industry's product. The number of substitute products can influence the industry profitability.
- *Buyers.* Buyers are the company's direct customers, which are not necessarily the final consumers. The power of buyers depends on their bargaining power which can influence the

profitability of the industry. The power of buyers is expected to be large when there are concentrated buyers, low switching costs and when the threat of buyer competition exists.

- *Suppliers.* Suppliers are responsible for the supply of products and services that the company needs to produce their own product or service. Supplier power is expected to be high when there are concentrated suppliers, high switching costs and when the threat of supplier competition exists.
- *Competitive rivalry*. To this group of competitors belong organizations that produce similar products and services, aimed at the same customer group. The degree of competitive rivalry depends on the characteristics of the wider competitive forces. Additional factors to describe the level of competition are competitor balance, industry growth rate, high fixed costs, high exit barriers and level of differentiation.

In succession to Porter's five forces framework, Austin (1995) made two modifications to the framework. Austin added government actions as an additional force to optimize its use in developing countries. It has proven that governmental policies and regulations often have a large influence to all competitor categories in developing countries. Austin describes government as 'the mega-force'. The second modification Austin made is adding environmental factors to the framework, as each of them can also influence the competitive forces and their relationships. Although the adaptations Austin made to the framework are originally meant for developing countries, the first modification is expected to be of relevance to the renewable energy sector as well. In this sector, the role of government is expected to be very influential to industry competition. The modification made by Austin can be helpful in analyzing this market. The five forces framework of Porter is presented in figure 3. The red circles and arrows are the additions made by Austin.

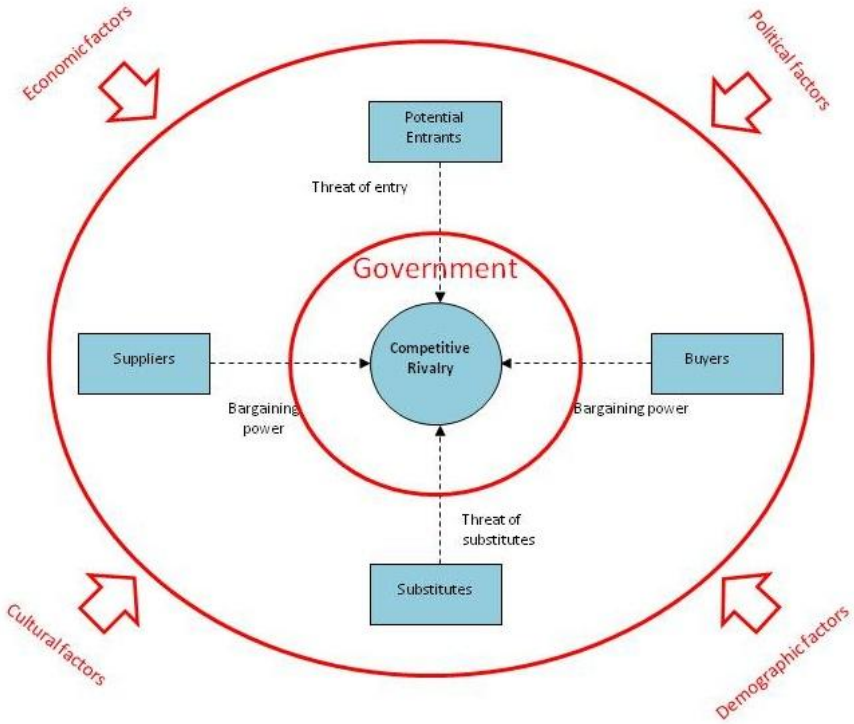


Figure 3: The five forces framework of Porter, according to Austin (1995).

Selection of criteria

When using market screening to select the most promising market for the Raedthuys Groep, the theories describes in this section will be applied. When combining general theories and more sector-specific theories, it is possible to build a model that is adapted to the situation of the company and covers a wide range of topics. Appendix 1 provides an overview of factors described by different authors that determine the attractiveness of markets for the development of renewable energy projects. These factors will be considered as criteria in the market screening phase.

It should be mentioned that the classification of criteria in a category is not very rigid. Some criteria can belong to more than one category, or relate to each other. The interpretation of factors among the different authors is also a little different sometimes.
For example, the models of Root, Ball and the PESTEL framework do not differentiate between political and institutional factors. The institutional factors described in table 4 and 5 are part of the political factors. The competitive screen by Ball et. al. consists of market factors according to the other authors and their financial/economic screen consists of market features. With environmental factors can be meant care for the environment as well as geographical features. Subsidies for technology development can be placed under both political/regulatory factors as well as technological factors.

Market selection

Searching for an approach to tackle the country selection problem, an article was found containing guidelines for a Multiple Criteria Decision Analysis (MCDA) for country selection (Beim and Lévesque, 2006). The MCDA model proposed by these authors is intended to eliminate inferior alternatives for market entry, considering various aspects which are important in country selection. The model is general enough to serve any industry. *"The country selection process better reflects the complexities of real business environments in that more facets of the problem can be considered simultaneously and a non-equal weighting of performance-related constructs can be used yielding a more accurate preference function"* (Beim and Lévesque, 2006). As a result, decisions can be better explained and defended. The following six steps are involved in a MCDA modeler's road map:

1. Criteria identification.
2. Listing of alternatives.
3. Quantification of each alternative under each criterion.
4. Translation of the quantification into a measure of value.
5. Selection of weights.
6. Identification of the favored option(s).

An explanation of these steps is given in appendix 2.

2.2.2 Methodology

Market screening is a comparative research with a descriptive nature, based on an analysis of existing data. The units of analysis in this study are countries. According to Saunders et al. (2007), for research projects that require national or international comparisons, secondary data will provide the main source to answer the research question. The main advantage of using secondary data in this case is that it has fewer resource requirements. Disadvantages of secondary data are that access can be difficult or costly, aggregations and definitions may be unsuitable, no control over data quality exists, data may be collected for another purpose or the initial purpose may affect how data are presented. These issues should be taken into account during the research. It is important to evaluate the suitability of secondary data sources for the research.

Special attention should be paid to:

- Validity, does the measure reflects the concept that it is intended to measure.
- Reliability means that if the research will be repeated, the same data will be found.
- Measurement bias can occur in analyzing and reporting data.

The market screening is carried out through a MCDA. The decision about the criteria to use and the weightings of the selected criteria is made in cooperation with the management and board of the Raedthuys Groep. The criteria are derived from the models described in section 2.2 and applied to the five selected countries (Belgium, Germany, Greece, Poland and UK). Due to time limitations and limited information access, not all factors are incorporated in the analysis. A priority list is therefore developed in collaboration with the management and board of the Raedthuys Groep.

Following the rules of the MCDA approach, the countries are ranked from one to five. To give a judgment about the opportunities in the selected countries, a comparison is made with the situation in the Netherlands. The unit of analysis in this study is countries. For the data collection, secondary sources are used. The following list consists of sources that were useful for the market screening and selection:

- Websites from associations and agencies.
- Statistical websites, amongst others Euro stat and the World Bank.
- Governmental reports.
- Information from the European Union.
- Websites from industry actors.

2.3 Internal analysis

The internal analysis describes the company's activities, strategy and capabilities. These characteristics play a role in the entry mode selection and should therefore be incorporated in the research.

2.3.1 Theory

Several theories can be applied to this topic. According to Root (1994), the way a company responds to external factors in choosing an entry mode depends on internal factors. Root distinguishes between product factors and resource commitment factors. Describing those factors is important in finding an answer to the research question.

Because the core business of the Raedthuys Groep is the development of renewable energy projects, some specific theories about project development can be applied to describe the company's activities. A project can be described as *'a temporary management environment which is created with the goal of building one or more company products according to a specific business case'.*
A project has several characteristics;

- *Specified results.* The goal of every project is the realization of a concrete and pre-defined result.
- *Temporary.* The collaboration between a project organization is temporary. After reaching the overall goal and the delivery of the final product, the life cycle of the product ends.
- *Multidisciplinary.* A project involves collaboration between people from different disciplines. Not only people from the company are working on a project, also people from outside the company can take part in the development process.
- *New.* Every project offers a new and unique product or service to the company. Otherwise, a project organization is not necessary.

PRINCE2 is a structured method for project management and means *'Projects In a Controlled Environment'*. PRINCE2 exist of eight processes, eight components and three techniques which are described in appendix 3. It is a standard for every kind of project and based on best practices. PRINCE2 describes procedures to coordinate people and activities in a project and a method to design and supervise the project. In the method, eight processes are specified with its key inputs and outputs and with specific goals and activities to perform, which gives an automatic control of any deviations from the plan. PRINCE 2 has a large flexibility. The method is process based, which means that the method does not prescribe a fixed order in the project management process. Aspects that are not relevant in a specific project can be excluded. The method is presented in figure 4.

2.3.2 Methodology

To make an internal analysis of the company, the internal factors described by Root in table 2 will be used to describe company characteristics and capabilities that are of relevance. The company's activities are described following the PRINCE2 method. Secondary sources that are used for the data collection are the company's website and company documents. Additional primary information is gathered through semi-structured interviews with managers of the Raedthuys Groep. A list of topics to discuss was prepared on forehand, to make sure the necessary information was gathered.

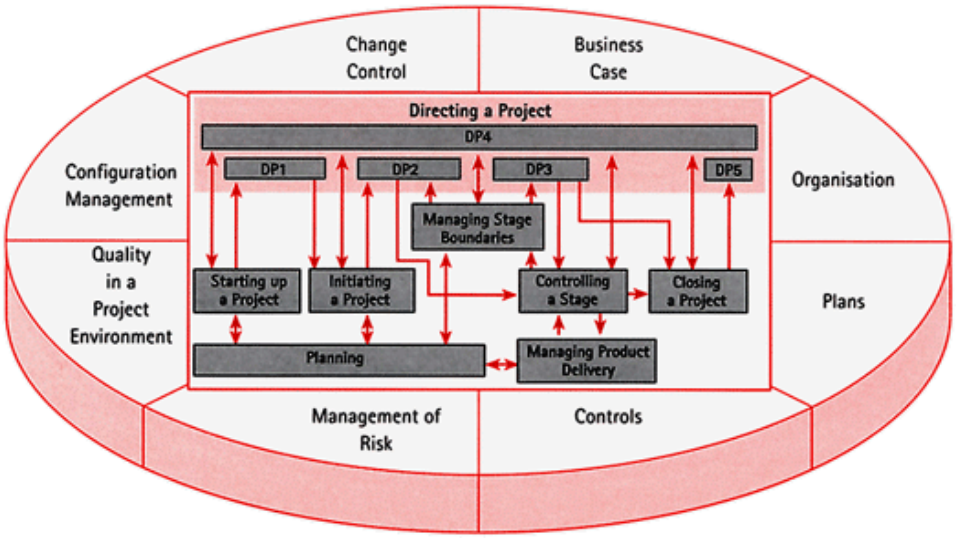


Figure 4: Diagram showing the PRINCE2 method.

2.4 External analysis

The goal of the external analysis is to get a better understanding of the target market by describing specific market, customer en competitor characteristics. Those characteristics are of importance to the entry mode choice and marketing approach.

2.4.1 Theory

The target market is selected using the MCDA method. For making an external analysis of the target market, the literature described in section 2.2 will be applied to this stage as well but serve another purpose. The external analysis consists of an in-depth research of the target market, instead of a brief description based on a selection of criteria derived from the literature. Factors about the external environment of the company, customers and competitors are described in section 2.2.

2.4.2 Methodology

Primary and secondary sources are used to collect the information. Primary data is necessary to gain additional information about stakeholders in the external environment, which is not available in the form of secondary data. Establishing contact with various stakeholders is an appropriate manner to collect the information that is needed. The following list consists of sources that are used for gathering data for the external analysis. Again, attention is paid to reliability, forms of bias, validity and generalizability.

Primary sources:

- Face to face interview with Kurt Sys from branch organization Biogas-E.
- Phone interviews with regulating offices, banks and energy companies.
- Email contact with several market actors.

Secondary sources:

- Websites from associations and agencies.
- Websites from regulating offices.
- Websites and reports from governmental organizations.
- Websites from industry actors.

2.5 Entry strategy

After selecting and analyzing the most promising country for the Raedthuys Groep, decisions on the modes of entry must be made.

2.5.1 Theory

As outlined in table 2, Root (1994) designed a model with factors that influence the choice of the entry mode. According to Root (1994) and Ball (2008), several entry modes can be distinguished, which are presented in table 6.

Non-equity Modes of Entry	**Equity based Modes of Entry**
Export ➢ Direct (agent/distributor) ➢ Indirect Subcontracting (construction/turnkey projects) Countertrade Licensing Franchising Technical Agreements Service Contracts Management Contracts Contract Manufacturing	Sole venture Joint venture Strategic Alliance (may also be non-equity) Merger and Acquisition (M&A)

Table 6: Modes of entry.

To select the most feasible entry mode, Root (1994) offers an approach to compare entry modes. Entry mode selection should start with reviewing all entry modes for their feasibility with regard to the target market and the company's resources and commitment. Negative screening will take place. After eliminating the non- feasible entry modes, the remaining options should be part of a comparative evaluation to select the most suitable way to enter the foreign market. Aspects that can be part of this analysis are:

- Comparative profit contribution analysis.

- Comparative risk analysis.
- Comparative analysis for non-profit objectives.
- Ranking by overall comparative assessment.

2.5.2 Methodology

According to Root (1994) and Johnson et al. (2008), the choice for a particular entry mode is influenced by several factors. The factors they describe are incorporated in the internal and external analysis. Recommendations on the entry strategy are based on the nature of these factors. In case of realizing renewable energy projects, more than one entry mode is feasible.
To select the most suitable entry mode, a comparison is made by following the approach of Root described in section 2.5.1.

2.6 Marketing approach

The last step in this research involves the marketing approach that should give the company insight in how to compete at foreign markets.

2.6.1 Theory

The marketing approach to be followed consists of several steps (Walker, Boyd, Larréché, 1995, p.148):

- The first step is *market research*, which is already carried out in chapters four and six and functions as input for the following steps of the research.
- The second step is *market segmentation*. It involves the identification of segmentation variables and segmentation of the market. The foreign target market should be carefully defined. The target market can be described as the total market, covering all possible customers or as part of the total market focusing on a particular group of customers. The first concept is called market aggregation and the second market segmentation. Several criteria can be applied to identify segments in a market, falling in two broad categories: general criteria and situation-specific criteria. For industrial products, what is relevant in this case, general criteria are industry classification, customer size, nature of operations, buying organization, geographical location and private versus public sector identity, benefits sought, purchase motivations and buying practices. To the situation specific criteria belong product requirements, buying practices, usage rates and benefits sought. It is recommended to use multiple criteria to overcome the weakness of 'a priori'selection'. The advantage of a market segmentation strategy above a market aggregation strategy is greater market effectiveness.
- The third step in the process is *targeting*. It means the evaluation of the attractiveness per segment and the selection of segments.
- The fourth step is *positioning*. It involves the development of the company's position concerning to competitors and the target group.
- The last step involves making decisions about the interpretation of the *marketing mix*, which involves decisions about the product, price, promotion and place (distribution). Because project development does not exist of the production of a single product or service, the marketing mix is replaced by a project marketing specific approach, which is described below.

From a marketing point of view, a project can be defined as *"a complex transaction covering a discrete package of products, services and other actions designed specifically to create capital assets that produce benefits for the buyer over an extended period of time"* (Cova & Holstius; 1993).

To differentiate projects from other goods and services, the transaction/production typology (Vasconcellos and Sa; 1988), that is presented in a matrix in figure 5, is appropriate.

Projects need a specific marketing approach, which is essentially different from the marketing of products and services. *"Project marketing describes the collective body of relevant players (stakeholders) in a company's project marketing activities".* (Cova & Salle, 2002) A 'milieu' can be identified which is characterized by four elements:

1. A territory.
2. A network of heterogeneous players (business people, governmental bodies, civil society organizations, etc.) related to each other within this territory.
3. A model constructed and shared by these groups.
4. A set of rules and norms ("the law of milieu") regulating interaction between these groups.

The marketing approach involves understanding this 'milieu' to develop a position for identifying (client) projects and securing relationships with stakeholders long before the appearance of a possible project. *"Project marketing has become increasingly relational. In project marketing, it is important to have a good relational mix as a good package mix"* (Jansson, 1989). *"This relational mix corresponds to a relational position in the network of both business and non-business actors"* (Baron, 1995).

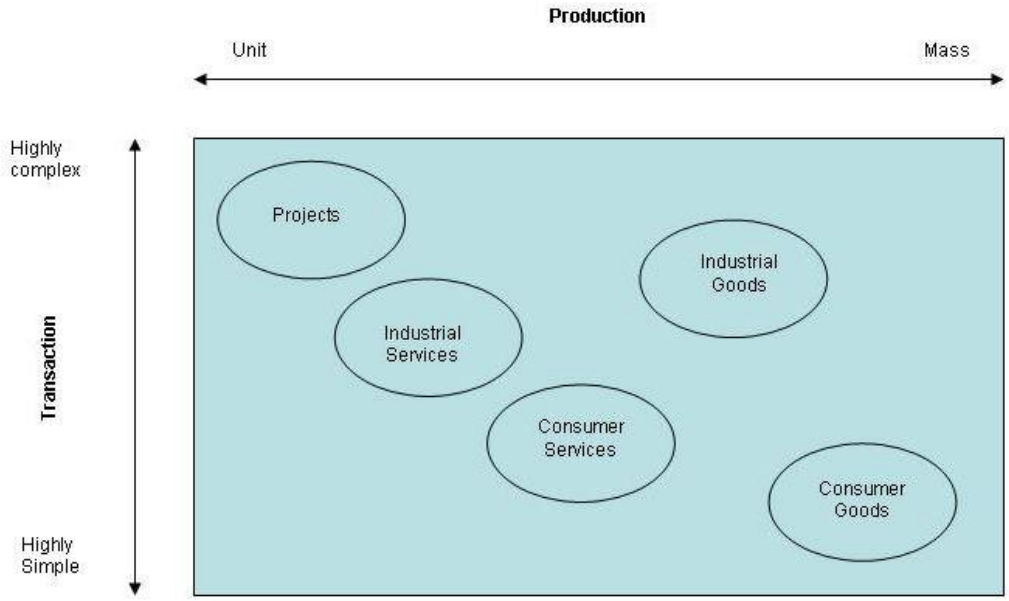


Figure 5: Transaction/production typology.

To identify stakeholders, the stakeholder mapping approach is a useful tool (Mendelow, 1991). *"Stakeholder mapping identifies stakeholder expectations and power and helps in understanding political priorities"* (Johnson et al., 2008, pp. 156). Stakeholder mapping underlines the importance of:

- The level of interest of the different stakeholder groups on the organization's purposes and choice of strategies.
- The power these groups have to do so.

The power/interest matrix, which is presented in figure 6, is a useful tool to categorize the various groups of stakeholders. The matrix indicates the type of relationship that an organization should establish with stakeholder groups in each of the four quadrants. *"The matrix helps in thinking through stakeholder influences on the development of strategy"* (Johnson et al., 2008, pp. 156).

Johnson et al. (2008) divide stakeholders into three types that are based on the nature of their relationship with the organization:

- Economic stakeholders (shareholders and elements of the five forces framework).
- Socio/political stakeholders (policy makers, regulators and government agencies).
- Technological stakeholders (key adopters, standard agencies and owners of competitive technologies).

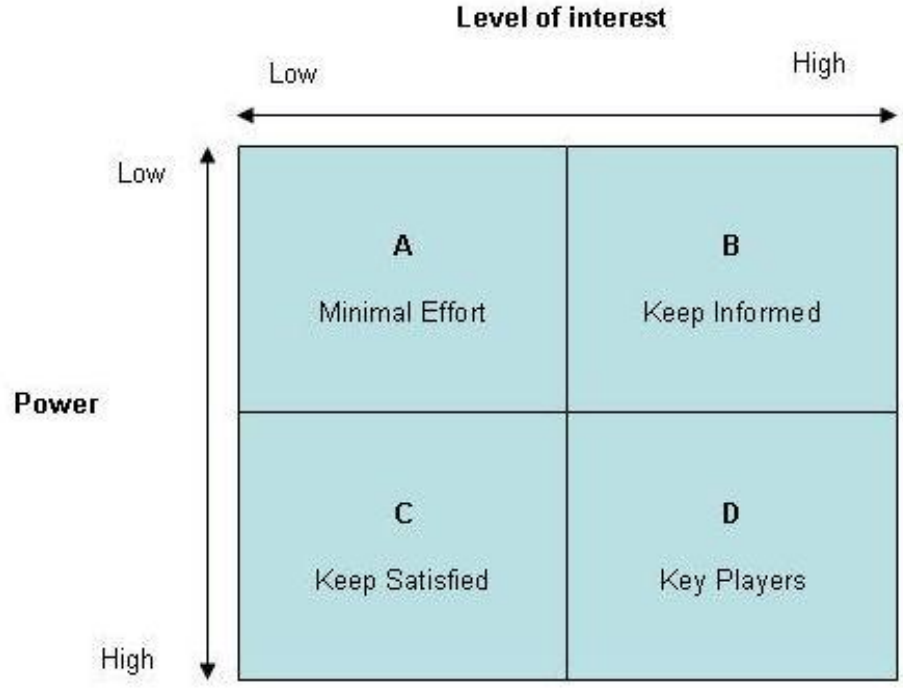


Figure 6: Power/ interest matrix.

2.6.2 Methodology

As described in section 2.6, the marketing of projects focuses on building relationships with stakeholders. In this part of the report, a stakeholder analysis is developed and recommendations about managing relationships with the stakeholders are given. Information about the contents of this chapter is distracted from the literature and the external analysis.

2.7 Conclusions

Several theories are used to develop a model that is suited to the situation of the Raedthuys Groep. The theories described above have shown that international market entry is a multistage process. Therefore, the research question should be divided into sub-questions. Each of those questions covers one stage of the complete process and together they form an answer to the research question.

Research question: *"Which of the selected countries has the best opportunities for the Raedthuys Groep to start renewable energy projects in, and which recommendations can be given about entering the target market and the marketing approach?"*

Sub-questions:

1. What is the most promising foreign market for the Raedthuys Groep?
2. What are the characteristics of the internal organization of the Raedthuys Groep?
3. What are the characteristics of the selected target market?
4. What is the most suitable entry strategy for the Raedthuys Groep to enter the foreign target market?
5. Which recommendations can be given with regard to the marketing approach in case of entering the foreign target market?

A research framework is prepared in which the steps to take in the research are described. The research framework is presented in figure 7 and is principally based on the model of Root.
The framework of Root is preferred above the methods provided by Ball et al. (2008) and Johnson et al. (2008) because using this model makes it possible to formulate a well defined answer to the research problem. The theories of the other authors are judged as less complete or serve another purpose. The international strategy framework of Johnson et al. is considered less useful. Market selection and mode of entry are elements of this framework, but deciding on an international strategy as described by these authors is not the purpose of this research. Ball et al. do not provide a complete framework for international market entry, but they provide additional insights to the topic of market selection and market entry, which will be applied on the individual steps of the research.
The five forces framework of Porter will be used to describe competitive characteristics of markets.

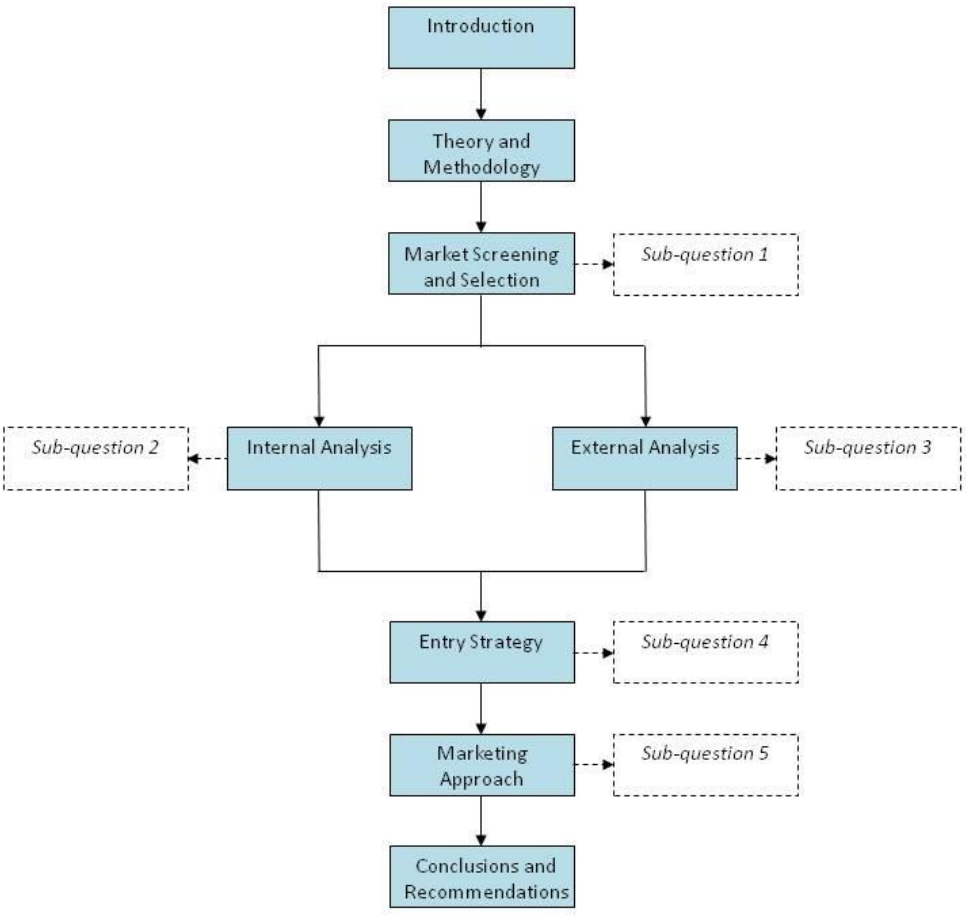


Figure 7: Research framework.

Chapter 3: Market screening and selection

3.1 Introduction

This part of the study is carried out to select the most promising country for the development of renewable energy projects for the Raedthuys Groep. The company has made a pre-selection of countries that should be investigated. The pre-selection is based on leads the company has in foreign countries, and therefore have their priority. The countries that are incorporated in this research are Belgium, Germany, Poland, Greece and the UK. The Netherlands is also part of this analysis to serve as a reference point.

3.2 Criteria identification

The market screening started with the set up of an overall goal; selecting the most promising country. This goal is divided into several perspectives and further by subdividing the perspectives into more detailed sub-criteria (measures). The perspectives used are derived from the theories described in section 2.2:

- *Political/Regulatory*. A stable political environment and a reliable subsidy system are very important to the Raedthuys Groep. Projects rely on subsidies to make them profitable.
- *Economic.* Energy dependency and currency stability are of importance to the company. Energy dependency determines the political need of renewable energy and currency stability is a risk factor.
- *Socio-cultural*. The establishment of a network in the foreign market is essential. Doing business in foreign countries can be difficult when cultural differences exists.
- *Environmental.* Source availability is important because it determines the capacity for future projects.
- *Legal*. The legal environment should be favorable to make the development of renewable energy projects possible.
- *Market.* Competitive forces and market characteristics also determine the chances for the Raedthuys Groep at foreign markets.
- *Geographical distance.* Problem solving from a distance can be difficult. Access to a project in a foreign country from the office in Enschede should be good.
- *Other (infrastructure).* Grid infrastructure is judged as being an important factor to the Raedthuys Groep. Remote areas often offer opportunities for the development of renewable energy projects, but realization of projects is possible only if there is a connection to the grid.

The complete list of sub-criteria and the scale on which they are measured can be found in appendix 4. Not all perspectives that are described in section 2.2 are incorporated in the market screening stage. Technological and institutional factors belong to the category of environmental factors but are not incorporated in the MCDA analysis. The institutional factors that are of main interest to the company overlap with the political/regulatory factors. Technological factors are excluded because it is impossible to make a comparison between countries with regard to technologies used within the given time period. The same is true for several market/industry factors. Only a selection of market factors that are of relevance and which are measurable are incorporated in the MCDA analysis.

3.3 Results

Results of the market screening through an MCDA analysis are presented in table 7 and 8. The first table shows the scores of the six countries on the different perspectives. No weight factors are applied. In the second table, weight factors are added. This means that perspectives that are judged as extra important by the management of the Raedthuys Groep are counted two or three times.

Because the added weights affect the results, a sensitivity analysis is performed to test the robustness of the results. Countless combinations of criteria and weight factors are possible. An experiment by the researcher with multiple combinations has shown that small differences in the ranking can arise. Germany and Belgium change position several times as well as Poland and Greece. However, a reversed combination of weight factors is used here. Results of the experiment are presented in appendix 5.

In accordance to table 7 and 8, Germany leads the ranking, Belgium ranks second with a reasonable difference and the UK third. Greece and Poland are on the last two positions, which mean that these countries are the least attractive. It should be mentioned that results are based on the current situation in the markets that can change over time.

	Belgium	Germany	Greece	Netherlands	Poland	UK
Political/Regulatory	3.5	4.5	3.5	4.1	2.5	3.9
Economic	4.5	4.5	4.5	3.5	2.0	2.5
Environmental	2.6	3.2	4.0	2.2	2.4	2.6
Socio-cultural	2.4	3.4	1.0	5.0	1.4	3.6
Legal	4.7	4.0	3.7	4.7	2.7	4.3
Market	2.5	3.8	1.5	3.5	3.5	4.5
Geographical	5.0	4.0	3.0	5.0	3.0	3.0
Other	5.0	4.0	2.5	5.0	3.0	3.5
Total	**30.2**	**31.4**	**23.7**	**33.0**	**20.5**	**27.9**

Table 7: Non-weighted average of perspectives.

	Belgium	Germany	Greece	Netherlands	Poland	UK
Political/Regulatory (3)	10.5	13.5	10.5	12.4	7.5	11.6
Economic (3)	13.5	13.5	13.5	10.5	6.0	7.5
Environmental (3)	7.8	9.6	12.0	6.6	7.2	7.8
Socio-cultural (2)	4.8	6.8	2.0	10.0	2.8	7.2
Legal (2)	9.3	8.0	7.3	9.3	5.3	8.7
Market (2)	5.0	7.5	3.0	7.0	7.0	9.0
Geographical (1)	5.0	4.0	3.0	5.0	3.0	3.0
Other (2)	10.0	8.0	5.0	10.0	6.0	7.0
Total	**65.9**	**70.9**	**56.3**	**70.8**	**44.8**	**61.8**

Table 8: Weighted average of perspectives.

Germany

The MCDA analysis shows that Germany has good opportunities to venture in. Germany scores especially high on the political/regulatory perspective. A stable and predictable policy framework has created favorable conditions for investors in renewable energy projects.

In Germany, a feed-in tariff is introduced to make energy production out of renewable sources profitable. A fixed price for every megawatt hour (MWh) produced is guaranteed for twenty years. A stable and predictable cash flow is guaranteed. Tariffs are differentiated by source and plant size.

To stimulate the development of more effective technologies, annual decreases of the tariffs (-1.0% - -10.0%) are in place. Germany ranks beyond average on the other perspectives as well.
The main advantages of Germany are the stable economic and political environment, the limited geographical and cultural distance to the Netherlands, the availability of sources and the size of the market.
The main disadvantage of Germany is the vertical integration of the market, which can be a serious threat for a small and independent producer like the Raedthuys Groep. The German energy market is dominated by four large companies that are active through the whole value chain. Eon, RWE, Fattenfall and EnBW are producers and suppliers of energy. They also own and operate parts of the distribution and transmission network. This vertical integration gives them high power and it can make it difficult for independent suppliers to enter the market. Unfair competition can exist because these firms can, for example ask high prices for a connection to the grid. Entry barriers are expected to be high in this market because of the maturity stage in which the market is situated. Because of the effective policies and subsidy system, the renewable energy sector is in a further stage of development than in other countries. A lot of companies are already active in the development of renewable energy projects, which can lead to tough competition for a small firm like the Raedthuys Groep.

Belgium
Although the market is small and still in its developing phase, Belgium offers good opportunities to the Raedthuys Groep. The country is easily accessible, and not many barriers are perceived on the other perspectives. The external environment is supportive to foreign investors. The availability over sources (wind, biomass, etc.) is sufficient. The quality and quantity of the grid is good. Disadvantages of the country can be found on the socio-cultural perspective and in the subsidy system. Large cultural differences between Belgium and the Netherlands are perceived. French as the official language in Wallonia is also a barrier. The main supporting measure for RE-development is the Green Certificate System, which has some disadvantages in comparison to feed-in tariffs. The certificates offer a lower investment security in comparison to feed-in tariffs because they do not guarantee a fixed price per MWh.

United Kingdom
The UK holds a third position, and should be taken into consideration when choosing a foreign country to venture in. The country scores high on the legal, socio-cultural and market perspectives. Doing business in the UK is perceived as easy in comparison with other countries of the European Union. The market for renewable energy has a large potential, as the UK is among the largest and most populated countries of the EU. There are limited cultural differences between the UK and the Netherlands (according to Hofstede), and the Raedthuys Groep has good knowledge about the country's language.
Difficulties are perceived on the economic perspective. The UK is not a Euro country, so currency risks are involved. Another issue is the United Kingdom's availability over fossil sources. From this point of view, there is no need to develop the renewable energy sector.
For the Raedthuys Groep, the geographical distance is also a barrier, as the UK lies overseas and is not as easily accessible as Belgium and Germany. The UK's political environment is stable, but the current RE supporting system has some disadvantages. As in Belgium, the system of Green Certificates is the main supporting measure. A drawback on the UK's system is that the certificates have no minimum price.

Greece
Initially, Poland and Greece should be eliminated as possible countries to venture in. Although Greece has a huge availability over resources and a stable policy framework for RE development, barriers exist on other perspectives. Doing business can be difficult because of a high level of corruption and red tape. The market situation is also not favorable. There is a high level of vertical integration; the whole market is dominated by one company. There is also a large geographical and socio-cultural difference between Greece and the Netherlands. Another disadvantage of Greece is the poor grid capacity; it is difficult to connect power plants to the grid.

Poland
Poland has proven to be the least attractive market. From the political/regulatory perspective, the country is not very attractive. The quality and stability of the government in general, and the policies regarding to renewable energy development are not as good as in the Western European countries. The same is true for legal issues, doing business in Poland is perceived as very difficult. From the economic perspective, Poland has the same characteristics as the UK. Currency risks are faced and Poland has a low energy dependency. The language and socio-cultural differences are also perceived as barriers.

3.4 Choosing the target market

After a reflection on the MCDA results with the management and board of the Raedthuys Groep, the market for further analysis is chosen. Wind energy and bioenergy are the preferred technologies because of the company's core competences and respective potential. The MCDA analysis has shown that Germany and Belgium are the most promising markets with regard to the development of renewable energy projects. The company's preference goes to the development of bioenergy projects. The realization of wind energy projects is expected to be more difficult because of the existence of dominant players and limited untapped potential in both countries. To make a choice between Germany and Belgium, the management has added some additional criteria to come to a well defined decision. In accordance to their mission and goals, the Raedthuys Groep wants to venture into a relatively young market with a good potential for future growth. This offers opportunities for the company to establish themselves as a main player at that market. In some countries, leads exist for the development of bioenergy projects. This is also a reason to give a country the priority for research. The third criterion is level of vertical integration, which was also part of the MCDA analysis. This criterion is counted again, because the high level of vertical integration of the German market is expected to be a serious threat. Table 9 shows the comparison between both countries on the three additional criteria.

The table shows that, based on those criteria, the situation in Belgium is more favorable than it is in Germany and is therefore chosen as the topic for this research project. This research will focus on the methanisation of biomass, which is one of several techniques to produce energy.
The methanisation of (wet) biomass is the specialty of the Raedthuys Groep. Sources that can be used as wet biomass are manure and other waste from the agricultural and food industry. Through methanisation and successive combustion of the evolved biogas in a combined heat and power plant, electricity and heat are created. The rest product is called digestate and can among others be used as fertilizer.

Criterion	Situation in Germany	Situation in Belgium
Growth opportunities	Expected to be difficult because of heavy competition. The market in Germany is in a further stage of development than in many other EU countries.	Expected to be good. The market is in an earlier stage of development than in Germany. The competition is not very intense (yet).
Existing leads in the market	None. The company is currently not searching for leads in Germany and is not approached by a local organization to take part in the development of projects.	Although they are not concrete, the company has been in contact with organizations in Belgium with regard to the development of projects.
Level of vertical integration	High. The German energy market is dominated by four large companies that are active through the whole value chain. Each of them owns a part of the transmission network. Vertical integration gives them high power and it can make it difficult for independent suppliers to enter the market. Unfair competition can exist.	Low. The transmission network operator in Belgium is ELIA, which is state owned and not active in other parts of the value chain.

Table 9: Comparison between Germany and Belgium.

3.5 Conclusions

This chapter provides an answer to the first research question: *"What is the most promising foreign market for the Raedthuys Groep?"* The MCDA analysis that is performed has shown that the countries of Western Europe (the Netherlands, Belgium, Germany, and, to a lesser extend the UK) offer the best opportunities for the Raedthuys Groep.

There are differences between those countries with regard to the criteria used, but in general they all rely over a stable political and economic environment and are relatively close to the home market. The grid infrastructure in these countries is good and they do not suffer from a high level of corruption and red tape which is the case in Greece and Poland. The Netherlands has a high total score due to the above mentioned characteristics and some home market advantages. We can conclude that doing business (and extend businesses) at the home market is preferred for the Raedthuys Groep.

From the foreign countries, Germany and Belgium are the best options. After reviewing the results of the MCDA analysis and adding several additional criteria, the management of the Raedthuys Groep has chosen for the bioenergy sector in Belgium as foreign target market. Growth opportunities, existing leads in the market and the low level of vertical integration were decisive.

Chapter 4: Internal analysis

4.1 Introduction

This chapter describes the internal factors that are influential to the choice of a particular entry strategy. Root proposed the company's product factors and resource/commitment factors as part of the decision making process.

4.2 Product factors

The core business of the Raedthuys Groep is the development of renewable energy projects. The Raedthuys Groep is a chain of companies with a strong position in the development of wind energy projects in the Netherlands. Since 1995, the company has grown to the largest private developer of wind energy projects. The company has extended their business to the bioenergy sector. Currently, several projects are under development. The definition of a project, as described in section 2.5 already is *"a complex transaction covering a discrete package of products, services and other actions designed specifically to create capital assets that produce benefits for the buyer over an extended period of time"*. The created capital assets, in this case energy plants, are kept as the company's property to produce energy that can be traded to generate a cash flow for the company. At the moment, the company has realized wind energy projects with a total capacity of 80 MW.

The Raedthuys Groep has created a model that describes the process structure in the development of a project. The first stage is project development in which we can find elements of the PRINCE2 method described in section 2.5. The other stages describe activities in the realization and exploitation of projects. Activities that are performed in the stages described below are related to the following aspects:

- *Acquisition of land*. The availability over land is the starting point of the project development process. Rental of the land over a period of the projects life time must be guaranteed. The Raedthuys Groep is constantly involved in the search of potential locations to establish a project. A good location is essential and can influence the profit of the project, especially in case of wind energy projects.
- *Permit procedures*. Environmental and urban permits are required before starting the building of projects. Applications for permits belong to the activities of the Raedthuys Groep.
- *Financial and legal aspects.* Lots of legislation is applicable to the development and exploitation of renewable energy projects. The company's legal experts are involved in those issues.
- *Technical aspects.* Bioenergy is created through fermentation or incineration of organic material. The process requires exact and solid know-how in the areas of project development, logistics, trade in biomass, technology, microbiology and chemistry.
- *Sourcing*. This refers to the trade in biomass. Contracts for the supply of biomass must be enforced. The company relies on external parties to foresee in the supply of input sources for the biomass installations.
- *Project management.* The company's project management activities are described below. It is a multistage process with the ultimate goal of realizing renewable energy projects.
- *Marketing and communication*. Marketing and communication activities serve multiple purposes. Recognition and appreciation are key values for the company. Name and proposition awareness are important aspects and public and investor relations should lead to an extended portfolio in the future. Public and investor relations are important. Marketing activities focus on several target groups. Among them are municipalities to promote the use of

green electricity. Neighborhoods and the general public are another target group to improve the image of renewable energy and provide the necessary information about the projects.

- *Trade of energy*. Raedthuys Energy is a buyer of the electricity and 'certificates of origin' produced by the energy projects initiated by the Raedthuys Groep. The certificates of origin prove buyers of 'green electricity' that the delivered energy is produced at a sustainable way. The Raedthuys Groep offers the electricity at trading markets like APX and Endex. Certificates of origin are delivered to municipalities, companies and organizations as well. Several municipalities are making their electricity use green.

Stage one: Project development. The development process starts with *the identification of leads* and the establishment of a project management team. The identification of leads means searching for areas in which it is possible to develop a project in wind- or bioenergy. When the availability over land is secured by the company, the development process can start. This stage will be ended with the preparation of the development letter in which a description of the planned project is given.
Pre-research is the second phase. In this phase, a feasibility study is carried out; topics included in this part are connections to the grid, the public opinion towards the establishment of the plant in the neighborhood, legal issues and permits needed. A development contract is prepared at the end of this stage which serves as a guideline for the project team in the further stages of the process.
The third step is called *project research* which involves a study to financial feasibility. A calculation of the project costs is made. A project brief is prepared at the end of this stage, which describes the project background, the project definition, an outline of the business case, risks, etc. The project brief is the result of the starting up a project process described by PRINCE2 and should create internal commitment.
After each phase the company should decide to continue with the project or quit. A business case will be created in the first phase and adapted after every completed phase. The project management team should evaluate every time whether it is useful to continue the activities.

Initiating a project is the next process described by PRINCE2. For the Raedthuys Groep it involves the *contracting phase* and consists of formalities with municipalities and the establishment of agreements with other stakeholders involved in the project. This is the point of no return. The business plan will be composed and the project development has come to an end. From this moment, the company can start with the building of the installation.

For wind energy projects it takes five to seven years to carry out the steps described above. For bioenergy projects, it takes three to five years.

Stage two: Realization. In this stage, the building of the installations takes place. Building of installations is performed by the supplier of the installation. The Raedthuys Groep has expertise in the field of construction from wind turbines and bioenergy plants and the management of construction and will accompany the building firm during the realization of the project. The company possesses also technical knowledge. Several employees are experienced with the building of installations. When knowledge is lacking, specialists are hired to fulfill an advisory function. Technological development is going fast in the renewable energy sector. To keep their knowledge up to date, training of employees is necessary. Training takes place mainly through desk research, study days, short courses, reading literature and information from branch associations.

Stage three: Exploitation. With regard to wind turbines, inspection of production plants and trading of the energy are the main activities that take place in the exploitation phase. For bioenergy plants, more

activities are involved. A continuous supply of input sources is required and the discharge of the digestate should be taken care of. Maintenance of the plant is performed by the supplier of the plant; the Raedthuys Groep takes care of the inspection.

Stage four: Disassembly. This last stage starts when the projects' life cycle has come to an end. The Raedthuys Groep can lead the activities that are necessary to break down or replace the energy plant.

4.3 Resource/commitment factors

In this section, the company's resources and their commitment towards international market development is discussed.
Although the Dutch market offers sufficient growth opportunities for the company in the future, (especially on wind- and bioenergy), the Raedthuys Groep has several motives to consider foreign market entry.[1] First of all, the management thinks the company possesses qualities that can make them successful at foreign markets. These qualities are mentioned in the previous section. Second, the Raedthuys Groep wants to be active on several geographic markets with different sources of renewable energy, if these markets offer opportunities for the company. For example, the company has the resources to develop geothermal projects. However, the ground in the Netherlands does not provide possibilities for this type of renewable energy so entering foreign markets is necessary in this case. To a lesser extent, this is the case for solar energy potential. Countries in southern Europe have a higher potential for solar power than the Netherlands. Third, the unattractive subsidy system and decreasing energy prices in the home market make it interesting for the company to find out if foreign countries are more attractive at some points.
As described in the former section, the Raedthuys Groep possesses resources in management, capital, marketing skills and technology to take care of the development, exploitation and financing of renewable energy projects in the Netherlands.
According to the management of the company, these resources can be used in other countries as well.

The managers and board of the company acknowledge market knowledge as very important. The company does not have knowledge about foreign markets and systems. Problems are also expected in negotiations with foreign parties due to differences in language and culture. Also problem solving from a distance can be difficult. When there is a large distance between the office and the foreign plant, Raedthuys would not always be able to solve problems that can arise on the foreign location.

International market development is not yet part of the company's formal strategy. The company's mission is *'to play an important role in the development of renewable energy in the Netherlands to contribute to a stable and sustainable energy supply'.*
The vision is described as follows: 'The Raedthuys Groep believes in the opportunities of renewable energy. *'We see it as our social responsibility to have a share in the development of the renewable energy sector in the Netherlands'*. Company goals are set on the short term and cover only the position on the Dutch market.

To realize the goals, the strategy is based on the following points:

- Creating a strong brand name. All activities are presented under the Raedthuys name.
- Bringing the acquisition and development of projects to a higher level.
- Strengthening the relationship with the government. Municipalities and provinces should be partners in the development.

[1] From an interview with T. Beune, CEO of the Raedthuys Groep

- Professionalize processes within the company.
- Strengthen the quantity and quality of the customer file.
- Enlarging the financial relations and financing opportunities.

The board and management of the company consider foreign market entry. Although it is not part of their formal strategy, this consideration should be taken seriously. Because the company is relatively small and the development of the sector is unpredictable, decisions are often made on an ad-hoc basis and no long term strategy is developed.
In accordance with their mission, the Raedthuys Groep wants to become one of the main players in every market they operate in. This means that the Raedthuys Groep will only enter foreign markets that have growth opportunities. The development of one single project is therefore not an option.

4.4 Conclusions

This chapter answers the second research question: *"What are the characteristics of the internal organization of the Raedthuys Groep?"* It is difficult to describe characteristics of the company's product/services, as their core business contains a whole range of activities from the acquisition of land until the trade of the produced energy. The availability over management skills, (technical) knowledge and financial resources makes the company successful in the field of project development in the Netherlands and can be used at foreign markets as well. However, the company is lacking any knowledge of foreign markets, cultures and languages.
The company is considering foreign market entry for several reasons and thinks that they can be successful with the company's skills and resources. The board and management of the Raedthuys Groep have a strong commitment towards international market development. The company is striving for a position as a main player at foreign markets that offer the opportunity do so.
Foreign market entry is not yet part of the company's formal strategy, which focuses on the Dutch market. Decisions are often made on an ad-hoc basis, because the market for renewable energy is very dynamic. Developing a long term strategy is therefore difficult. The company's home market strategy, mission and vision can be extended to foreign markets.

Chapter 5: External analysis

5.1 Introduction

The bioenergy sector in Belgium is chosen as foreign target market and a topic for further research. The goal of the external analysis is to describe the characteristics of this market. The target market environmental factors, production factors and market factors are described and the industry attractiveness is measured. Home country factors are described because they can influence the choice for a particular entry strategy. This chapter will focus especially on the region of Flanders, because the renewable energy sector is a responsibility of the regional government.

5.2 Target country environmental factors

The influence of environmental factors to the development of the renewable energy sector is already outlined in chapter three; market screening and selection. This section will provide additional information to the most important factors; political and legal.

5.2.1 Political factors

The governmental organization of Belgium has a complex structure. The government has three levels with equal legal status regarding to their legislative and executive power:

- Federal Government.
- Regional Government (Flemish, Walloon and Brussels).
- Community Government (Flemish, French and German).

Lower levels of government are the provinces and municipalities. In practice, the regional governments have the most influence to the development of the renewable energy sector.

The federal state consists of the parliament and government with legislative and executive power respectively. The authorization of the federal state covers aspects of general concern. Responsibilities include the army, public health, justice, police and social security. The state is also preserving over the economic and energy policy of the regional governments.
The regional governments are responsible for territorial issues like the environment and environmental planning, urban development and employment, housing, economic policies, transport, foreign trade, agriculture, energy, academic research etc. The regional governments are also responsible for the development of the renewable energy sector. For this research it means that Flanders, Wallonia and Brussels should be treated as separate markets. Because of the limited size of the region and the high urbanization degree, the region of Brussels will be excluded from this research.
The communities are populations separated on language and are empowered to deal with issues that are of direct concern for their citizens. Issues include culture, education, media, and health care.

Targets for renewable energy production

Mandatory targets for the generation of energy from renewable sources are set by the EU in the Directive 2009/28/EC of 23 April 2009, on the promotion of the use of energy from renewable sources.[2] Targets are set for all member states regarding the use of energy from renewable sources as a percentage of the final use of energy. On EU-level, the goal is twenty percent in 2020.
For Belgium, the target is 13% in 2020. From 2011, all member states should determine their intermediate targets on a yearly basis to reach the goal for 2020. Before March 2010, member states need to present annual action plans with the proposed actions to realize the obligatory targets.

[2] Directives can be consulted at the http://eur-lex.europa.eu website.

For Belgium, the target should be divided between the regions and between sectors (electricity, heat and biofuels).
In the context of this direction, Belgium should establish federal and regional policies and targets, because renewable energy is empowered under the regional government. The regions should prepare their action plans and communicate this to the federal state.

Subsidies
In both Flanders and Wallonia, several subsidies are available for producers of renewable energy. They can be divided into two categories:

- Direct support for the production of electricity exploitation.
- Investment subsidies.

The Green Certificate system is the subsidy for the produced electricity out of renewable sources. This system is used in several countries to promote the development of the renewable energy sector. In Belgium, the system is introduced in 1999 and is operational in both regions. The working of the system is explained below.

For each MWh produced from renewable sources, a producer receives a tradable Green Certificate which are issued by the regulating offices. The Vlaamse Reguleringsinstantie voor de Elektriciteits- en Gasmarkt (VREG) in Flanders and the Commission Wallonne Pour l'Energie (CWAPE) in Wallonia. The certificates can be sold to an energy supplier with a certificate obligation against a negotiated price and is independent from the sale of the physical energy. The revenue from the sale of these certificates is the subsidy for the production of energy from renewable sources. The certificates can also be sold to the Distribution Network Operator (DNO) against a minimum price set by the regulating offices. The DNO is obliged to buy the certificates when the producer asks to do so. The height of the minimum price is different for the several technologies. When sold to energy suppliers, no difference is made in the price for certificates. Certificates are sold against a negotiated market price which is based on supply and demand conditions (which can be influenced by the regulation offices). The amount of certificates a producer should buy represents a percentage of total energy supplied to customers and is based on the targets set by the EU (13% in 2020).
Between the two regions, small differences in the system exist. In Flanders, Green Certificates are issued for every MWh renewable energy produced. The net production is measured as the electricity produced on the site minus the electricity used to run the site. The support is guaranteed for a period of ten years for the net production against the minimum price, and unlimited for the market value.
There are some specific rules with regard to electricity production from biomass. For plants producing energy from waste, the OVAM (Openbare Vlaamse Afvalstoffen Maatschappij) determines the amount of energy that is eligible for Green Certificates. For energy produced out of manure, waste and effluents, electricity to run the site is not deducted from the gross production, when one can prove that the best alternative method to digest the materials will use the same amount of electricity. For electricity produced from biomass coming from outside the borders of the Flemish territory, the production will be reduced with the amount of energy that is equivalent to the electricity use of the transport of the biomass to the borders of the Flemish territory.

Cogeneration Certificates are additional in the Flemish region and are issued for every MWh Combined Heat and Power (CHP) produced.

In Wallonia, Green Certificates are granted for the amount of CO2 avoided; 456 kg per certificate with a maximum of two certificates per MWh. In the last five years of entitled support, there is a reduction

on the amount of Green Certificates issued, calculated on the profitability of the investment. The support is guaranteed over a period of fifteen years. No CHP certificates are issued in Wallonia. The production of energy by cogeneration is compensated by the method by which the Green Certificates are issued.
In both regions investment subsidies are available for renewable energy projects. In Flanders the following benefits are in case:

- Investors can apply for the 'ecologiepremie'. This subsidy compensates 16.5% of the total investment (approximately 5% net). The subsidy will be granted to a selection of projects, which are judged on the technology used, economic performance, accession to audit memorandum and the possession of an environment certificate. The 'ecologiepremie' is not granted to farms.
- Farms can rely on VLIF aid (Vlaams Landbouw Investeringsfonds), when they invest in renewable energy. Because of the high requirements, this subsidy is never granted to a bioenergy project before.[3]
- Other investment subsidies are the 'verhoogde investeringsaftrek' of 10% and the 'groeipremie'. Investors can apply when they can meet certain requirements.[4]

In Wallonia, there are also benefits applicable to the renewable energy sector:

- An energy premium is available for small scale cogeneration plants. This premium covers 20% of the investment costs. The maximum amount is €15,000.
- For 100% agricultural biomethanisation plants, a premium additional price of €84.40 per MWh produced is provided for one or two years. For SME's (Small and Medium Enterprises) investing in renewable energy projects there is an incentive that brings on the over cost of a renewable energy plant compared with a traditional fossil fuel installation. The incentive varies from 15 to 40% of the total investment costs.
- Investors can also profit from fiscal incentives. A deductible tax quota of 13.5% for investments for environment and energy savings and an exemption of real estate immovable's for a period of three to seven years.

5.2.2 Legal factors

The development and exploitation of bioenergy projects is subject to legislation. This section will provide an overview. A difference is made between the two regions.

Flanders

For the realization of an energy production plant, an environmental permit and an urbanization permit are required. There is a connection between the two. If one is neglected it makes the other one invalid too. To the environmental permit, the VLAREM I (Vlaams Reglement betreffende de Milieuvergunning) legislation is applicable. Depending on the effect of the activities on people and the environment, several categories are distinguished. A bioenergy plant belongs to the category of most inconvenient activities (categorie 1). The competent government for the judgment of the application for "categorie 1" installations is the province. The procedure for the application of an environmental permit is enclosed in appendix 6.
For installations of "categorie 1," VLAREM II legislation about environmental hygiene is additional. An urbanization permit is always required. A bioenergy plant can be built in industrial and agricultural area, when it fits within the development plan for the area. For both, specific rules exist. For the

[3] According to K. Sys, technological advisor of Biogas-E.
[4] More information about the available subsidies can be found at http://www.vlaanderen.be and www.energiesparen.be

establishment of plants at agricultural grounds, it is required to use fixed amount materials from agricultural sources (60%) as input sources for the production of energy. In industrial areas, there are no restrictions regarding to the input sources, but the installation should fit within the development plan of the area.
Input sources that are used as biomass are also subject to legislation. Rules and standards are applicable on European, federal and regional level.

The European directive 1774/2002 contains rules and standards regarding public health. On the regional level, the OVAM is the responsible body and the VLAREA legislation (Vlaams Reglement voor Afvalvoorkoming en –beheer) should be respected. The most important consequence of the VLAREA is that it puts standards on the input sources that can cause pollution. The VLAREA legislation is extensive and complex, but most important is chapter four about secondary use of materials.[5] A list is created with materials that are allowed to be used as biomass sources and a list of sources for which it is forbidden to use as biomass.
With regard to output sources, an inspection certificate from the VLACO (Vlaamse Compostorganisatie) is required before using the final product or digestate.

Manure is not considered as waste so it is not subject to VLAREA legislation. Nevertheless, rules and standards are applicable on European, federal and regional level.
On the European level, directive 1774 regarding the use of nitrate should be followed. On the federal level, the KB 7/1/1998 is regulating the trade in fertilizers, soil improvement products and cultivation substrates. On a regional level the 'Meststoffendecreet' contains legislation regarding the anaerobic digestion of manure and the use of the digestate on land in Flanders.[6] It contains the amounts of nutrients expressed in kg P2O5, kg N, kg N from animal manure, kg N from other manure and kg N from fertilizers that may be spread on the land and varies per crop group. The Mestbank is the responsible organization.

Wallonia
Logically, the directives on European and Federal level as described for Flanders are also applicable to Wallonia. This section will describe the aspects that are regulated by the Walloon Government.
In Wallonia, a single permit is required which includes the environmental permit and the urban permit. An environmental impact study is required when the quantity of waste treated is above fifty tons per day in a settlement zone and above a hundred tons a day in other zones. For the farmers' own substrate, no analysis is required. Substrates from other farms or industries must be mentioned in the environmental permit and should be analyzed through the Walloon waste office. For the use of digestate as a fertilizer, following the Nitrate Directive is required when it results from digestion of cattle effluents from one single farm. When it is mixed with a co-substrate external to the farm, it is considered as waste and authorization is required.
With regard to the setup of a plant, it is possible to build a plant in agricultural area only if the owner of the plant is the owner of the fields or farm lands, or if the plant is recognized as being beneficial to the general public. In other cases, the plant has to be built in industrial or habitual areas where no inconveniences for residents exist.

[5] VLAREM and VLAREA legislation can be consulted at the EMIS-VITO website: http://navigator.emis.vito.be/milnav-consult/faces/consultatieOverzicht.jsp
[6] The 'Meststoffendecreet is published at the website of the Mestbank: http://www.vlm.be/algemeen/Regelgeving/Mestbank/Pages/default.aspx

5.3 Market factors

In 2008, the region of Flanders generated approximately two million MWh energy from renewable sources. This amount corresponds to 4.13% of the final amount of energy supplied to consumers. The main part of the renewable energy production comes from three sources of biomass. The largest category is biomass from forestry or agricultural waste. The second category is biomass from household waste and the third category consist of several sources of biogas. Table 10 shows ratios of the bioenergy sector in Flanders.[7] The capacity is presented in megawatt electrical (MWe) and involves multiple techniques to generate energy from biomass sources.

	Number of producers	Installed Capacity in MWe	Share in total installed capacity %	Lowest Capacity in MWe	Highest capacity in MWe
Biogas (wastewater)	15	4276	0.6	110	542
Biogas landfill gas	13	18993	2.6	181	9539
Biogas remaining	40	60300	8.2	31	20000
Biomass from waste	10	149800	20.4	2000	34000
Biomass from household waste	9	42440	5.8	1700	11500
Biomass from agricultural or forestry sources	22	186480	25.4	6	90000

Table 10: Ratios of the bioenergy sector in Flanders.

The bioenergy sector is developing. EMIS-VITO (Energie en Milieu Informatie Systeem voor het Vlaamse Gewest and Vlaamse Instelling voor Technologisch Onderzoek) has made a forecast for the growth of the of the renewable energy sector until 2020 separated for the different sources. Table 11 shows the prospected growth in gigawatt hour (GWh).

Technology	2008 (GWh)	2020 (GWh)
Hydropower	50	50
Photovoltaic	50	450
Wind power	400	1800
Biomass/Biogas without waste	1450	4200
Biomass waste	200	300

Table 11: Prospected growth of the renewable energy sector in Flanders.

113 Biomass/Biogas installations are operational in Flanders. The total installed capacity is around 540 MWe. Biogas-E has provided an overview of methanisation plants under development. Currently, 53 have gotten the permits to build the installation. A list of those installations is provided in appendix 7.

[7] Figures are published by the Minaraad and are coming from the VREG.

In Wallonia, the market for biomass/biogas is young but has a large potential. 10 biomass/biogas installations and 32 cogeneration installations are operational. The total installed capacity is 192,455 MWe. Table 12 provides an overview of the ratios with regard to the bioenergy sector in Wallonia.

	Number of producers	Installed Capacity in MWe	Share in total installed capacity	Lowest Capacity in MWe	Highest capacity in MWe
Biomass/biogas	9	95634	unknown	26	80000
Biomass cogeneration	33	96811	unknown	12	29801

Table 12: Ratios of the bioenergy sector in Wallonia.

Wallonia has a great future potential for biomass from the agricultural and forestry industry. Table 13 shows the expected production in 2020.[8] Figures are based on the target of 13% renewable energy in 2020. However, Wallonia has the resources to produce for more than 30% of their final energy from renewable sources. Therefore, the CWAPE proposed to the Walloon government to raise the target to 33.25% in 2020. The target is not yet adopted.

Technology	GWH 2008	GWh 2020	% of total renewable energy (2020)
1. Hydropower	440	440	5
2. Wind onshore	400	2250	27
3. Photovoltaic	50	150	2
4. Biomethanisation		375	4
5. Biomass from local wood production	1400 (total biomass)	800	10
6. Other Biomass		90	1
7. Wind offshore		2602	31
8. Biomass from imported wood		1667	20
Total		8374	100
Local production		4105	49
Imports		4269	51

Table 13: Prospected growth of the bioenergy sector in Wallonia.

5.4 Five forces analysis

This section describes the five forces framework of Porter, applied to the bioenergy sector in Belgium. The five forces framework does also describe several production factors of the target market.

5.4.1 Bargaining power of buyers

In Belgium, two separate buyer markets exist for the electricity and heat produced out of biomass or biogas:

- Trade of the Green Certificates and CHP Certificates (in Flanders).

[8] All figures for Wallonia are coming from the CWAPE.

- Trade of the produced electricity (physical production) via Belpex or Endex.

The cash flow of the production unit consists of the revenues from the electricity and certificates sale, which is partially accountable for the profitability of the project. The information given can be applied to energy production from other renewable sources as well (except from CHP certificates), although the minimum value of the Green Certificates is differentiated by technology.

Green Certificates can be traded with or without guarantee of origin. In Flanders, the market value of the certificates in 2009 with guarantee of origin lies between €104.87 and €109.50 per MWh and has an average of €107.51. The current value is €106.50 (August 2009). The value of the certificates without guarantee of origin lies between €106.59 and €111.32 per MWh with an average of €108.48 and a current value of €107.48. The wholesale electricity price is also fluctuating. In May 2009, the price was €57 per MWh (base load).[9]

The minimum value of the Green Certificates is €90 per MWh. This amount is guaranteed for ten years. The market price is not always a good reflection of supply and demand conditions from the market. The government will intervene when there is a large difference between supply and demand. The ceiling price of the Certificates is €125. This is the price an energy supplier must pay to the VREG when the Certificate target is not met. The issued certificates are valid over a period of five years.

The guaranteed price for the CHP certificates is €27. The DNO is obliged to pay this amount of money to the producer. The average market price of the CHP certificates is €40-€41 (2009).

In Wallonia, the actual market price for the Green Certificates is €87.29 per MWh (second quarter of 2009). In the first quarter, the price was €89.40. The guaranteed minimum price for the Certificates for electricity from biomass is €65 per MWh, for a period of maximum fifteen years. The ceiling price is €100. The additional price for the guarantee of origin was in the second quarter of 2009 €0.3973.

The wholesale energy prices are regulated by the federal state. Energy prices are fluctuating. Between December 2006 and April 2009, prices lie between €44 and €94 per MWh.
It is difficult to make any predictions about the future development of energy prices and the market value for the Green Certificates in both regions. For an investor, the market mechanism in the subsidy system and energy prices leads to uncertainty about the profitability of the project.

In Flanders, 23 electricity suppliers are registered. Wallonia has sixteen registered energy supplying companies.[10] These companies are considered as potential buyers of the Green Certificates.
To meet their certificate obligation, electricity suppliers can invest in production facilities to produce green electricity themselves, or buy green certificates from independent producers like the Raedthuys Groep. In the second case, trading of certificates takes place. The power of buyers is high when there is an oversupply of Green Certificates. In this situation, they can enforce a profitable price for the certificates during negotiations. When there is a balance between demand and supply or shortage of certificates, their power will decrease.

Agreements are negotiated on a bilateral basis or through the trading platforms Certexo and Belpex.

[9] Most actual figures provided by Bergen Energi.
[10] The lists of energy comanies can be consulted at the websites of the VREG and CWAPE.

To sell the certificates, it is a common procedure that a producer sends an offer for the available certificates to a supplier.[11] A supplier can choose to:

- Buy a certain amounts of certificates on the spot market.
- Buy a fixed amount of certificates from a producer as described in a contract.
- Buy the complete production (electricity + certificates) from a production plant.

Producers of renewable energy have an interest in enforcing long-term agreements with buyers with a price formula to reduce the price risk and to ensure a stable cash flow from their investments. Generally, suppliers are most interested in long-term agreements when there is a shortage of certificates. In this situation, long-term agreements guarantee sufficient certificates against a fixed price. A producer must take into account that in general, prices of certificates traded on the spot market have a higher value. It should be understandable that this is not a given fact. Prices should be negotiated. The current market situation and the predictions of the future situation of the parties involved plays a role. Risks involved in the production of electricity are also included.
When there are sufficient certificates available on the short term, suppliers often prefer to buy on the spot market. Oversupply of certificates leads to a higher degree of price uncertainty for the producer. In both regions there is a current oversupply of certificates. The situation might change in the years to come. It is difficult to make predictions about the future market situation. Governmental policies can hinder or change the development of the sector, and these policies and targets can be changed or adjusted any time.

5.4.2 Threat of new entrants

"The threat of entry in an industry depends on the height of entry barriers that are present and on the reaction entrants can expect from incumbents. Entry barriers are advantages that incumbents have relative to new entrants."[12] There are seven major factors:

Supply side economies of scale

The most important economies of scale can be found in research & development. Employing a more efficient technology that drops down the costs of production can lead to a cost advantage over competitors. On the contrary, innovations are often more difficult to finance because more risks are involved in new technologies.[13] Technology improvements are driven by the government by lowering the minimum and maximum price of the Green Certificates from 2015 on. Efforts taken to keep the technology used profitable are worth taken when the costs can be spread over multiple production plants.
However, gaining economies of scale through the realization of large and numerous production plants is difficult because of the risks involved. It is often difficult to require building and environmental permits for large installations. Contracting the input sources to run the installation (especially long-term price contracts) is also a bottleneck for a plant owner and one of the main risks. These risks and barriers are especially eminent for installations with a production capacity larger than 20.000 tonnes a year.[14]

[11] Information about bilateral trade of certificates is gathered through phone calls with Lampiris, SPE and Nuon. These energy companies were willing to provide information about the topic.
[12] Porter, M.E. (2008) The five competitive forces that shape strategy. Harvard Business Review. January 2008, p. 81
[13] As experienced by the Raedthuys Groep.
[14] According to Kurt Sys, technological advisor for Biogas-E

Demand side benefits of scale
Those benefits do not play a major role in this industry. It is hard to outperform competitors on criteria different from price although it is imaginable that energy supplying companies prefer to buy large quantities of certificates when they need to do so, and not buying small amounts from a number of suppliers.

Customer switching costs
This factor is of little importance. The market for Green Certificates is virtual. Often, the origin of the certificates does not make a difference to the buyer of the certificates. As part of their marketing strategy, it is possible that some energy suppliers only buy certificates coming from specific sources (wind, biomass, solar etc.) but usually this is not the case.
The same is true for the electricity produced. Because all electricity is injected in the same grid which is not owned or operated by the energy suppliers. Because customer switching costs do not exist, the barrier of gaining customers is not high.

Capital requirement
This factor is a crucial one. Investment in production plants is necessary to generate energy and collect Green Certificates. Banks will invest in renewable energy projects that are commercially viable, operate on long term contracts and use mature technologies.
The bottleneck for many plant owners is enforcing long term contracts with suppliers and buyers. As outlined in the previous paragraph, enforcing long term agreements with buyers of Green Certificates is often difficult because sufficient certificates are available on the short term and the development of prices is unsure. Energy prices are also fluctuating, wherefore a stable cash flow is not guaranteed.
The supply of biomass sources is another uncertain factor. Contracting input sources over a long term is difficult because scarcity is expected in the near future. Suppliers of biomass expect that the prices will rise in the future when shortages arise. Therefore, they are cautious with regard to long term contracts. Other issues that are assessed by banks are service agreements, warranties, environmental and building permits, certificates for the input sources, construction and operation contracts, tenancy agreements, etc. Banks make use of technical advisors to assess the technologies and legal advisors to check the contracts.[15]

Incumbency advantages independent of size
This factor is of less importance. Incumbents do not per definition employ the most efficient technology, own the best geographic location or have the best access to input sources. Yet there are a limited number of installations operational in Belgium. There is still space on the market to build new installations on favorable locations. The technologies used are continuously developing. The opportunity exists for new entrants to build installations that are more profitable than technologies used by incumbents, if they possess the proper knowledge.

Unequal access to distribution channels
Access to distribution channels is not a barrier in this industry. Concerning the distribution of electricity, the EU directive 2001/77/EG states that all member countries should provide non-discriminatory access to the grid. When the grid capacity makes a connection possible, the Transmission Network Operator (TNO) is obliged to connect the plant to the grid. The Green Certificate market is a virtual one. As outlined before, certificates can be sold by contacting energy

[15] Phone contact with Triodos Bank Belgium.

suppliers or by offering the available certificates through one of the trading platforms. Access is provided to every producer of Green Certificates.

Restrictive government policies
To reach the target of 13% renewable energy in 2020, governmental policies are established to make market entry easier. As outlined in section 5.2, subsidies and other aid policies are facilitated by the government to make the generation of renewable energy profitable and attractive for new entrants. On the other hand, restrictions on input- and output sources and permits necessary to establish a bioenergy production plant can make the market less attractive for newcomers, but incumbents are facing the same difficulties when planning the start-up of a new production plant.
For Dutch firms, there are no barriers on foreign investment in Belgium that withhold them from entering the market, except from administrative procedures.

5.4.3 Threat of substitute products or services

From a customer's point of view, no good substitute for Green Certificates exists. Instead of buying Green Certificates from independent producers or obtaining certificates from their own production units, a supplier can choose to buy the penalty price for each missing certificate. Governmental policies don't leave supplying companies a choice. Green Certificates are issued only to energy produced from renewable sources in Belgium and cannot be imported or exported.

For a project developer, other renewable energy sources and technologies to generate energy can be seen as substitute products and a threat to the profitability of their own investments. To a certain extent, the amount of Green Certificates issued will have an influence to their price. Green Certificates are given to all sources of renewable energy (wind, solar, etc.). The targets set are based on the potential that exist for the different sources of renewable energy in Belgium. The government can intervene when there is a big gap between supply and demand and alter the targets to keep the prices at a reasonable level. The Raedthuys Groep has specialized in the methanisation of biomass, one of several technologies to produce energy from biomass sources. Competition with other technologies exists on several aspects. Competition for the available biomass sources, competition for land and competition for permits. Permits are issued to the most efficient technologies.

5.4.4 Bargaining power of suppliers

The main suppliers for the Raedthuys Groep are suppliers of biomass and suppliers of the installations. This section will elaborate on both groups.

Suppliers of biomass
It is almost impossible to create a list of suppliers from biomass. In potential, all industrial, agricultural and household waste can be used as input for biomass installations.[16]
However, the use of biomass sources for heat and electricity production is expected to increase to more than the double amount in both regions. The power of the suppliers is determined by the demand from the market. When the demand is high, suppliers can ask a high price for the biomass. It is expected that the power of the biomass suppliers will increase over the years when scarcity of biomass exists, especially in Flanders. Scarcity of input sources is a bottleneck in the development of the sector, as prices of input sources have an influence on the profitability of projects and a continuous supply must be guaranteed.

[16] The OVAM website can be consulted for (potential) suppliers of biomass.

Wallonia has a great potential for bioenergy production. In this part of the country, wood is the main source. Energy production from wood represents 70% of the total energy production from renewable sources. The potential of bioenergy from wood can be evaluated by dividing it into three categories:

- Forestry products. 30% of the Walloon region consists of forest area. On a yearly basis, more than 423,000 tonnes of forestry waste is available for energy production.
- Waste from the wood preparation industry (sawmills). The wood preparation industry produces 260,000 tonnes of waste every year.
- Energy crops like brushwood with a short orbital period represent 300,000 until 500,000 tonnes a year.

Wallonia offers also opportunities for methanisation of biomass. For this technology, the following sources are available:

- Agricultural wastewater; 18 200,000 tonnes a year.
- Industrial waste; 1 150,000 tonnes a year.
- Household organic waste; 100,000 tonnes a year.
- Sludge; 70,000 tonnes a year.

Also material from the agro and food industry is available for the production of biogas. The methane potential of farm manure, coming from the cattle breeding industry is estimated at 98.284 Ton Petroleum Equivalent (TPE).

The region of Flanders also offers opportunities for bioenergy production from domestic sources, but these are limited. When the growth of the sector continues, Flanders will rely on imports of biomass to realize the predicted capacity.
The availability of biomass in the region of Flanders is presented in appendix 8. When considering the renewable energy target for 2010, a production of 2200 GWh electricity from biomass installations is predicted. With an expected efficacy of 40%, 1.7 million tonnes of biomass are needed to fill this potential.
The total supply will exist of 700,000 tonnes of wood, 150,000 tonnes of bio-oil, 215,000 tonnes of coffee/olive pulp, and 650,000 tonnes of material for fermentation (manure, organic-biological waste and materials from energy crops).
For 2020, the most optimistic scenario is expecting a production of 4416 GWh electricity from biomass installations. The required amount of biomass must be doubled to reach this target. From the overview in appendix 8, one can conclude that a shortage of input sources will arise. Because of the scarcity of input sources, the power of suppliers is especially high in Flanders.

Suppliers of installations
For methanisation, two firms are leading the market in Belgium. BiogasTec and Trevi are the main players here.
Other companies that are active in Belgium are Colsen, Host (Dutch) Envitec (German), van der Wiel (Dutch), Biotim and DWS. The development of the market makes it also for these kinds of firms interesting to enter. For the Raedthuys Groep this means that there are several opportunities for the construction of bioenergy plants.
About the suppliers can be said that they are differentiated because there are differences in the technologies used and services offered. This can strengthen their position on the market, depending on the customers' needs. Forward vertical integration exists in some cases, where the suppliers also take care of the development of projects and investment of the project (Envitec, van der Wiel).

5.4.5 Competitive rivalry within industry

This section will elaborate on industry competitors concerning the development and exploitation of bioenergy projects in Belgium. Competitive rivalry can be expressed in terms of intensity of competition and the basis on which they compete. Competitors can be roughly divided into two groups.

- Independent project developers that do not own input sources or land to build an energy plant.
- Agricultural or industrial firms that have the availability over biomass sources and land to develop their own projects.

Independent project developers are firms like the Raedthuys Groep. Their core business consists of the whole range of activities that are part of the project development process and the exploitation of the energy plants. These firms invest in the energy plant or develop turnkey projects. A limited number of firms are active on the Belgian market, among them several multinationals. None of them has reached a dominant position yet.

In Flanders, the following organizations are identified that have been responsible for the establishment of bioenergy plants:

- *Greengas*. This international company currently has around fifty projects in nine countries. The company focuses on the project development, construction and operation of bioenergy plants. They have realized biogas and landfill gas projects in Flanders and Wallonia. Four energy plants are operational yet. Partners in the realization of these projects are Electrabel and the Intercommunale (collaboration between two or more communities) 'land van Aalst'.
- *DLV Belgium* is fulfilling the same activities as the Raedthuys Groep. They have been responsible for the development of multiple projects in Flanders and own four of them. This company is also active in other sectors than renewable energy.
- *Groep Machiels* is a multinational active in the field of project development in multiple sectors, among them the development of bioenergy plants. The company collaborates with several parties to develop and invest in projects. Three projects are operational in Flanders.
- *Thenergo* is a fully integrated and independent developer and operator of energy projects using biogas, natural gas, bio-oil, woody biomass and secondary fuels. They have two biogas projects realized in Flanders and two biogas projects are under development. Thenergo is also active in Germany and the Netherlands.
- *Ecoprojects* collaborates with Eneco on the development of Biogas installations. They are responsible for the realization of four biogas projects with a total capacity of 9.345 MW. This firm has the availability over permits for three more projects and twenty projects are in the research phase. This company has planned to realize up to fifty gasification projects in the period 2010-2020.
- *Envitec*. This multinational has three energy plants in operation and three under development in Flanders. The company is active throughout Europe and in the entire value chain for the production of biogas.

In Wallonia, the following firms are identified as competitors for the Raedthuys Groep:

- *Burgo*. This company is an Italian project developer that has one biomass power plant in Virton.
- *TPF*. The TPF Group is a company that operates on multiple markets worldwide. In Wallonia, they have taken care of the development and exploitation of two production plants.
- *Greengas*. This company is also active in Flanders and collaborates with Electrabel in Wallonia.

- *4 Energy invest*. This company has two biomass cogeneration units in operation.

The second group of competitors has other characteristics, but is competitive on several aspects. They produce the same 'product' and have the same customer group. As a producer of energy from biomass sources, they receive Green Certificates which can be sold to energy companies. The number of certificates available will influence the price and so the attractiveness of the industry.
They compete on investment grants, which are in most cases offered to a selection of projects.
Also, competition for the available land and input sources exist.

The intensity of competition is considered to be reasonable based on the following characteristics.
The previous overview shows that competitors are not numerous and roughly equal in size. An industry leader does not really exist. This is a common situation for an in industry that is in its growth phase. The bioenergy sector goes through a fast growth, differences in market share can arise in the coming years. Although legislation can make it difficult, there is (still) enough unused potential in both regions to give new entrants a chance to compete on this market nowadays. Organizations can grow with the market and not necessarily at the expense of a rival.
The industry is facing high fixed costs and high exit barriers. Bioenergy plants require high investments in capital, research and development. Exit barriers can be considered as high, because the wide range of activities involved requires specialized knowledge to compete on the market for renewable energy.

5.4.6 Role of governance

In accordance with the model of Austin, this section explicitly describes the influence of the government to all competitive forces.
To the *buyers* described in section 5.4.1, the influence of governance is very large. The Green Certificate system is introduced by the government to promote the development of renewable energy. It is mandatory for energy suppliers to buy Green Certificates to meet the targets set by the European Union. Prices of the Green Certificates are also regulated through the introduction of a minimum and maximum value.
As described under the heading governmental policies in section 5.4.2, governmental policies and regulations also affect *new entrants*. The government has a facilitating role by granting subsidies and other aid policies that makes it possible for new entrants to make their projects profitable. On the other hand, the realization of plants is difficult due to permit procedures and regulations and can therefore withhold companies from entering this market.
The government has diminished the thread of *substitute products or services*. No substitutes for Green Certificates exist. Green Certificates are granted to energy generated from renewable sources only. Certificates are valid in the region of production only and cannot be exported or imported.
Rules and regulations also affect *suppliers* of installations and suppliers of biomass. Regarding biomass, the regional governments of Flanders and Wallonia have created a list with sources that are allowed to be used as biomass. Permit procedures and legislation affect the sales of suppliers of installations. Installations can be built only if the necessary permits are granted to the project.
By introducing policies and regulations, the government has tried to create an environment that stimulates the development of renewable energy, which is necessary to meet the EU-targets.
The government can also influence the intensity of competition for *industry competitors*. The targets set by the government create potential for the development of projects. Increased targets will lead to new potential for the development of projects every year. Growth opportunities reduce rivalry. On the other hand, restrictive policies with regard to the issuing of permits can have reversed effects.

5.5 Home country factors

Several home country factors are already outlined in chapter three. The MCDA analysis has shown that the situation in the Netherlands is not unfavorable for the development of renewable energy projects. One reason to consider foreign market entry is that there is heavy competition on subsidies available for the development of renewable energy projects in the Netherlands. The appropriate subsidy system is the SDE (Stimulering Duurzame Energieproductie). This system is based on feed-in tariffs that guarantee the investor a fixed amount per KWh produced. In 2009, the subsidy on biomass is between €152 and €177 per MWh. Not all projects can get the SDE. There is a lottery system in case because the number of projects exceeds the available budget. This uncertainty is a drawback on the Dutch system. Another drawback on the situation on the home market are the strict regulations with regard to input sources for co-fermentation, to find a solution for the overabundance of manure. Limitations for investors arise because they have to act according to the 'positive list'. The company has experienced this list as a main barrier to the development of projects.

5.6 Conclusions

This chapter gives an answer to the third research question: *"What are the characteristics of the selected target market?"* Belgium cannot be considered as one single market. The regional governments of Flanders and Wallonia are responsible for the development of the renewable energy sector. Large differences exist between those regions and they should be treated separately. The Green Certificate system is in both regions the main support for investors. It is questionable if this system is effective to stimulate the growth of the sector because prices for the certificates are not fixed, buyer and seller must negotiate about the prices. Uncertainties about current and future prices of the certificates exist. Risks are involved for the investors. Because the market price is equal for all technologies, the system is not stimulating the development of immature technologies.
The development of energy plants is subject to legislation in both regions which can be a barrier for the growth of the sector. This situation is comparable to the Netherlands.
In both regions, the sector is in its growth phase. Several players (investors, suppliers) are already active on the market and a significant number of installations are operational. Public acceptance is increasing. The unused potential in combination with the obligatory targets leaves opportunities for new entrants because the growth of the sector is a fact. Because of the risks involved and the expected barriers, is recommended to focus on the development of small scale energy plants.
This chapter has made clear that government is a primary actor in the industry environment. Government can be described as the "mega-force" that shapes industry structure and competitive dynamics. Government actions directly and indirectly affect the competitive forces.

Chapter 6: Entry Strategy

6.1 Introduction

This chapter answers the question of what is the most suitable entry strategy for the Raedthuys Groep to enter the Belgian market. The suitable options are evaluated based on the data from the internal and external analysis. Selection of entry modes starts with reviewing all entry modes on their feasibility with respect to the company's products, resources and commitment. This kind of negative screening will on forehand eliminate entry modes that are not appropriate. The remaining entry modes are judged for suitability with regard to the external environment of the firm.

6.2 Selection of feasible entry modes

In this section, the company's product and resource/commitment factors are evaluated to find out which options exist for the Raedthuys Groep. As outlined in the internal analysis, the intention of the company is to grow into a leading position in every market they operate in. The core business of the firm involves a whole range of activities from the search for leads until the exploitation of renewable energy projects on site and the investment in energy plants.

Entering foreign markets is not part of the company's growth strategy; the home market has the highest priority. Commitment to enter foreign markets is growing because of the difficulties the company faces on the home market.

It is expected that the company's resources in management, capital, marketing and technological knowledge can be used to operate on a foreign market. The requirements in Belgium are not fundamentally different from the situation in the Netherlands. Limited knowledge about the market, and in case of Wallonia language, favors the collaboration with a foreign partner.

High commitment to a foreign market is a requirement to operate successfully. The development of projects in a new market is a protracted process with eminent risks involved that can lead to failure. Export-based modes of entry can be eliminated on forehand. These modes of entry do not support the company's mission and vision and are not feasible for the kind of business the Raedthuys Groep is active in. Feasible entry modes are investment entry modes and contractual entry modes. The Raedthuys Groep has the following options:

- The development of an energy plant through a sole venture; the Raedthuys Groep is the only investor in the project and has the full ownership and control over the development and exploitation of the plant. External parties can perform certain activities but do not have a share in the plant. This option is preferred when limited risks are involved through a stable political and economic environment and a favorable market situation.
  Knowledge about the target market and the country's culture and language are also requirements to operate successfully. The Raedthuys Groep can start a sole venture from scratch or through the acquisition of a local company.
- The development of an energy plant through a joint-venture or strategic alliance.
  Collaboration with a local partner in the development of an energy plant is an option for the Raedthuys Groep. This option is preferred when the partner possesses strategic knowledge or resources that the Raedthuys Groep does not own and which are difficult to get.
- The delivery of turnkey projects/contractual agreements. This option can occur when there is an attractive offer from a principal. The Raedthuys Groep will carry out all the activities that are involved in the development process, and will hand over the project to the intended proprietor as soon as it is in operation.

Another issue regarding market entry is to consider opening an office in the foreign country or managing the business from the Netherlands.

6.3 Evaluation of feasible entry modes

After analyzing internal and external factors, we can conclude that investment modes of entry are most feasible. This kind of entry fits best with the company goals and core business. The startup of turnkey projects is not directly in accordance with the company's strategy. Within the category of investment entry modes, a distinction can be made between sole ventures and joint ventures/strategic alliances.
As outlined in the external analysis, there are no restrictions on foreign direct investment from Dutch firms, as both countries are EU-members. The political and economic environment of Belgium is stable, the same can be said about the policy framework to promote the development of the renewable energy sector. The market for bioenergy has reached the growth phase which means that there still is (limited) potential to realize new projects. Positive aspects about the development of projects in Flanders are the language and the limited geographical distance. These aspects support investment entry through a sole venture.
Difficulties are expected with regard to the following aspects. First of all, the company has no knowledge about the country's market, culture and in case of Wallonia, the language. Second, the supply of input sources and the acquisition of land are difficult (especially in Flanders) because there is limited availability and strict legislation is applicable. Prices of input sources are uncertain. Another barrier is enforcing long term contracts with buyers of Green Certificates to get credit from a bank to finance the installation. Entering the Belgian market through a joint venture or strategic alliance with a foreign partner can reduce these risks and is therefore preferred. Acquisition of a local company should be considered as well.
For the Raedthuys Groep, it is recommended to collaborate with a local partner or buy a local partner that has one or more of the following characteristics:

- Is an owner of input sources and land (backward vertical integration).
- Is a buyer of the Green Certificates (forward vertical integration).
- Has experience on the market and possess knowledge about the country's culture and language.

For businesses that can perform the partner function to reduce certain risks, one can consider the following:

- Agricultural farms. When establishing an energy plant on agricultural ground, 60% of the input sources must exist of agricultural products. To ensure a stable flow of input sources against a reasonable price during the products' lifetime, the Raedthuys Groep can give the farm owner a share in the project. Other advantages are the limited transportation cost when using agricultural sources and often the availability over the farmers land to build the energy plant.
- Industrial firms, for example from the food-industry. The advantages of collaborating with an agricultural farm can be applied here too. Waste from production can be used as biomass. Input sources are guaranteed and transportation costs are kept low by this way and investment costs can be shared.
- Establish a joint-venture with an energy supplying company. These companies have a Green Certificate obligation and can obtain the Green Certificates and electricity produced by the plant. An example of such a strategic alliance in Belgium is the collaboration between project developer Ecoprojects and energy company ENECO. Ecoprojects started as an independent company but currently ENECO has a majority share in Ecoprojects.
- Establish a joint-venture with a firm that performs the same activities as the Raedthuys Groep, but is already active in Belgium. Especially in Wallonia, this kind of joint-venture can be useful as the partner company can take care of the negotiations with stakeholders.

In case of acquisition, a local company that is already active in the development of renewable energy projects is preferred.

One must mention that when cooperating with a local partner or by taking over a local company, it is important to recognize the cultural differences that exist between Belgium and the Netherlands. For a successful cooperation, understanding the partner's culture is a requirement. A reference can be made to the cultural dimensions of Hofstede in the market screening. Differences in culture lead to a different way of doing business. People from Belgium should never be treated as if they are like the Dutch, although they speak the same language. Fundamental differences exist. The Belgian culture is characterized by a high level of uncertainty avoidance, in contrast to the Netherlands. This means that in Belgium, strict rules, laws and policies are adopted an implemented to eliminate or avoid the unexpected. Where the Dutch are straight to the point, decision-making in Belgium takes time and a high level of bureaucratization is common in Belgium. The level of power distance is also higher in Belgium than it is in the Netherlands. The relationship between manager and subordinates is more authoritarian. Foreigners doing business with a Belgian company must understand that subordinates are not used to take initiatives and make decisions. Respect for people with a high function is also expected and must be showed. The Belgian society is more masculine than the Dutch. People are expected to be more assertive and competitive in Belgium. Belgium can be seen as a *'contact country'* and the Netherlands as a *'contract country'*. Trust is very important for Belgians. Therefore, it is important to visit the business partner on a regularly basis to build a relationship.

Opening a foreign office should be considered when it is difficult to manage the project development process from a distance. The Raedthuys philosophy says that 'project development is local business.' From this point of view, it is recommended to open a foreign office. Also foreign partners can be helpful here, for example to take care of negotiations and problem solving on site. Opening a business through a sole- ore joint venture is possible in the form of a branch or subsidiary.
"A subsidiary in the form of a company organized under Belgian law is endowed with legal personality and hence forms a legal entity distinct from its parent. Contrary to a subsidiary, a branch, although it may constitute an economic entity separate from the head office of the foreign company, is not endowed with a distinct legal personality, but is part of a legal entity of that foreign company."[17]

6.4 Conclusions

This chapter answers the fourth research question: *"What is the most suitable entry strategy for the Raedthuys Groep to enter the foreign target market?"*
Because of the characteristics of the business the Raedthuys Groep is active in, only a couple of entry modes are feasible. The most suitable entry mode is investment entry. When entering a foreign market, the Raedthuys Groep can establish a sole venture or joint-venture or take over a local company. In Belgium, the establishment of a joint venture with a local partner or acquisition of a local company are the preferred options. The Raedthuys Groep possesses limited knowledge about the Belgian market and the preferred partner should fulfill a complementary function when it comes to market knowledge. Preferred partners are agricultural or industrial companies that own input sources and/or land, energy supplying companies that buy the Green Certificates or a joint-venture with a competitor. Besides of market knowledge, these parties also own resources that are of strategic importance. It is important to recognize the cultural differences that exist between the Netherlands en Belgium. Acknowledging cultural differences is the cornerstone for success.

[17] www.mineco.fgov.be/investors/why_invest_in.../legal.htm

Chapter 7: Marketing approach

7.1 Introduction

The subject of project marketing is described in section 2.6. Project marketing focuses on the establishment of relationships with stakeholders. Projects can be realized successfully only if the expectations of stakeholders are satisfied and if the requirements set by those stakeholders are met. This chapter describes the stakeholders that are involved in the development of bioenergy projects in Belgium. The chapter also describes the role and position of those stakeholders and how the Raedthuys Groep should approach them to meet the stakeholders' terms and realize projects successfully.

7.2 Definition of the target market

Chapters four and six have provided an overview of the bioenergy sector in Belgium. The information provided in these chapters will be used as input for the marketing approach.
To define the company's target group, market segmentation should be applied. Segmentation should lead to a more effective marketing approach.

With regard to the development and exploitation of bioenergy projects, it is rather difficult to define the target group, as there are no buyers for the project. The company takes care of the development, investment and exploitation of the projects by itself. In this case, the target group does consist of several groups of stakeholders instead of customers only. To realize a project, marketing activities should focus on the stakeholders in the project, and are principally relational. The next sections of this chapter will focus on the identification of stakeholders and their position in relation to the company.

The production of the bioenergy plants exist of electricity, heat and Green Certificates. Cash flow is generated by selling those products. Electricity is injected in the transmission network and traded through a trading platform. A specific marketing approach is not necessary. Heat can be used for local purposes only because storage of heat is not possible.

Buyers of Green Certificates and energy are the company's customers and are another target group. The market for Green Certificates is very small. The certificates can be sold to energy supplying companies only, which are a select number of companies in both regions. Export of Green Certificates to another region is not possible. All energy supplying companies are potential buyers of Green Certificates and energy, as they have a certificate obligation. No further segmentation is necessary. Marketing activities can be used to stimulate the sale of energy and certificates.

7.3 Identification of stakeholders

In terms of the nature of the relationship with the company, external stakeholders can be usefully divided into three main categories:

- *Economic stakeholders* are identified by the five forces framework of Porter in section 5.4. To this category belong energy companies, suppliers of biomass and suppliers of installations, investors, owners of land and the transmission and distribution network operators.
- *Socio political stakeholders* can be considered as very influential to this industry. As mentioned before, policy makers, regulators and government agencies play an important role in this sector and partly determine the opportunities for the Raedthuys Groep. To this group of stakeholders belong governments at several levels, neighborhoods and action groups.
- *Technological stakeholders* are also involved. Among them are suppliers of technology (suppliers of installations, TNO and DNO's), who also belong to the group of economic

stakeholders. Standards agencies are also considered as technological stakeholders. Institutions like the VREG and CWAPE and OVAM in Flanders can be considered as standard agencies because of the requirements they put on energy production from renewable sources.

7.4 Stakeholder mapping

Stakeholders can be divided into four categories, depending on their level of interest and power in relation to the company. In this section, a description of the stakeholder's role and the way they should be approached by the Raedthuys Groep is given. Figure 8 shows the matrix applied to the bioenergy sector in Belgium.

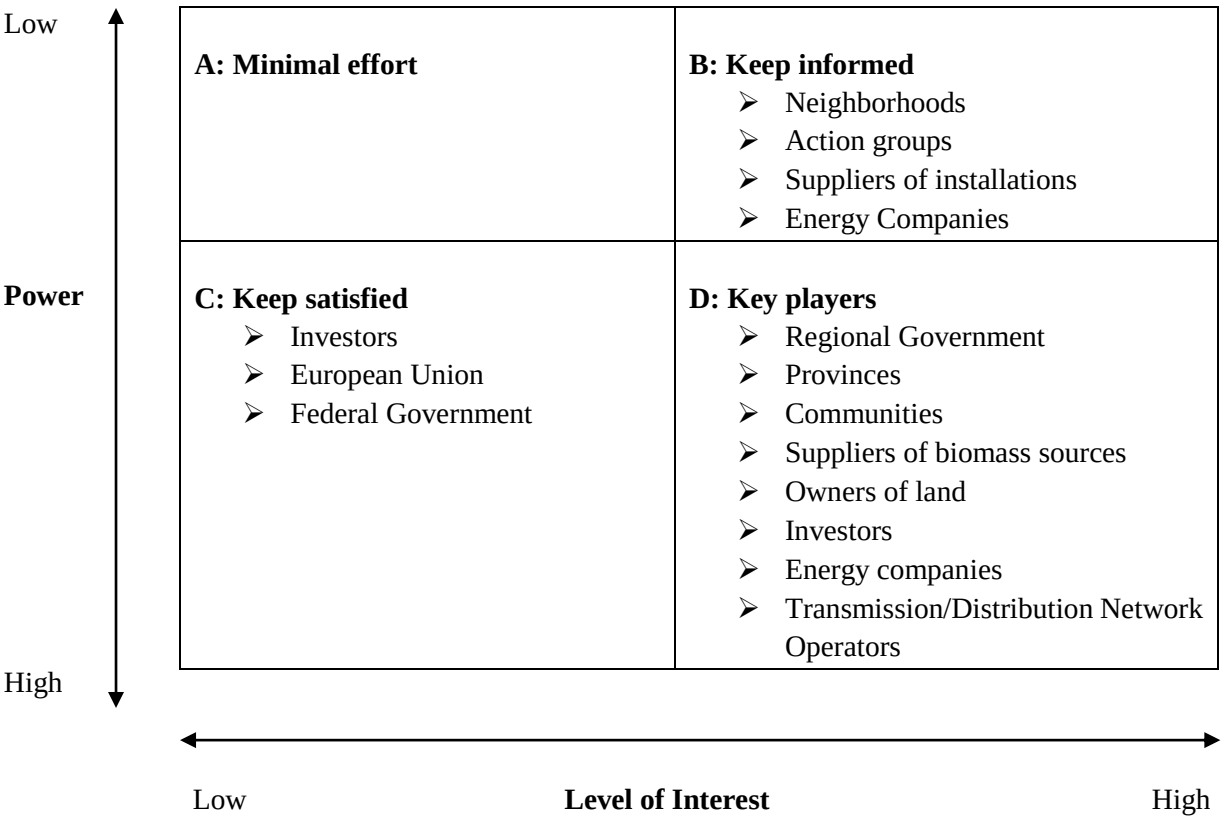


Figure 8. Power/Interest matrix applied to the bioenergy sector in Belgium.

7.4.1 Quadrant A: Minimal effort

No stakeholders with low power and a low level of interest are identified. This does not mean that these groups do not exist, but they do not fall within the scope of this research.

7.4.2 Quadrant B: Keep informed

Stakeholders that have low power and high interest are the neighborhood and action groups that are against the development of bioenergy plants.

Neighborhoods

This group is characterized by a high level of interest because the establishment of an energy plant can affect their living situation. They often protest because they expect the installation to cause noise, bad odors, danger of explosion and inconveniences from the transport of biomass. Biogas-E has experienced that in Belgium, these protests can barely influence the issue of licenses by provinces or

communities, in contrary to the Netherlands. The inconveniences for the project developer are therefore expected to be minimal. Marketing activities should focus on the sensitization of the topic. It is common for project developers in Belgium to organize publicity meetings in collaboration with Biogas-E to inform neighborhoods about the planned activities. For the Raedthuys Groep it is also recommended to organize meetings to get in contact with this group of stakeholders.

Action Groups
The existence of action groups should also be taken into consideration but their size and resistance is diminishing. Protest groups are not very active at the moment. The attitude of 'green' parties towards bioenergy is improving. The Raedthuys Groep can stimulate this positive development through the promotion and sensitization of the topic. Public relations can be used as a tool to improve the image of bioenergy as well as the image of the company itself.

Suppliers of installations
This group can fall within this quadrant as well as in quadrant D. Because the suppliers are differentiated, their level of power varies and depends to a certain extend on their customer's needs. A further explanation is given in sub-section 7.4.4.

7.4.3 Quadrant C: Keep satisfied

To the stakeholders that have high power and low interests belong the European Union, the federal state and investors.

European Union
The EU is a powerful stakeholder. The European Union has developed a climate plan that is mandatory to all member states. For Belgium, it means that they should realize the target of 13% renewable energy in 2020. The EU does not have a stake in the execution of the plan, it is a responsibility of the member states itself.

Federal government
With regard to energy, the federal government is responsible for the grid infrastructure, electricity plants, transport of electricity and tariffs. The development of the renewable energy sector is for the largest part a responsibility of the regional government. Only offshore wind energy projects are a federal responsibility. Therefore, the federal government does not belong to the category of main players. The federal government has a responsibility towards the European Commission with regard to the 13% renewable energy target in 2020 and the composition of the yearly action plans. It is their job to distribute the target between the regions and to hand over the action plans to the European Commission. For a project developer like the Raedthuys Groep, there is no direct connection with the federal government of Belgium.

Investors
This group of stakeholders can belong to this quadrant as well as quadrant D. Especially in times of a financial crisis, banks are reluctant to finance projects with a high risk factor and show low interest in financing renewable energy projects. To apply for credit, the company should meet the terms draught up by the bank. Those terms are described in section 5.4.2 and relate to equity share, the enforcement of contracts and agreements and the necessary permits.

7.4.4 Quadrant D: Key players

The most important stakeholders belong to this quadrant. They have high power and high interests. For the success of the project, it is important to satisfy the needs of those stakeholders.

Regional government

Governmental organizations fall within this quadrant. Energy and renewable energy development is the responsibility of the ministry of LNE (Flanders). Several offices are responsible for the preparation and execution of the policies. Involved in the Raedthuys Groep's business in Flanders are the VREG, OVAM and Mestbank. These governmental agencies have high power and a high level of interest because they are responsible for the development of the sector to reach the EU targets. Because these organizations have legislative power, repositioning of this group of stakeholders is impossible for a single firm as the Raedthuys Groep. Joining branch associations or forming coalitions with other firms is in this case recommended to increase their power. Each of those agencies has their own responsibilities. The role of those agencies and an advice for the Raedthuys Groep about how to approach them is described below.

- *VREG & CWAPE*. Those agencies fulfill the same function. The VREG in Flanders and the CWAPE in Wallonia. Those regulating offices are authorized to issue the Green Certificates. In Flanders, the application for Green Certificates exists of an application form to the VREG, an information form from the OVAM and an inspection report from an authorized institution. The procedure takes approximately three months.
- *OVAM*. This organization takes care of the preparation and execution of waste-management in Flanders and the applicable legislation. Use of biomass is one of their responsibilities. In Flanders this organization has an advising role in the environmental permit procedure with regard to biomass sources used.
- The *Mestbank* is part of the Vlaamse Landmaatschappij and has prepared the 'Meststoffendecreet' which contains legislation with regard to the use of manure for the generation of biogas and the digestate. The company must act upon this legislation and should take this into account when considering using manure as input source.
- Flemish government *'agentschap ondernemen'*. The Flemish government offers the 'ecologiepremie' to ecology investments. Entrepreneurs can request for this subsidy for their project through the website of the government. A selection of projects will be chosen and will be judged on the following criteria;
  - The degree to which the ecology investment contributes to the realization of Kyoto goals and environmental goals.
  - The economic livability of the company.
  - The entry to an energy covenant with the Flemish government.
  - The availability over an environmental permit.
- The Flemish government is competent to give support to agricultural investments. The application should be aimed at the *'Vlaams Landbouwinvesteringsfonds'*. Registration should start before building the project. The investor should provide information about:
  - The company.
  - The type of project.
  - The credit provider.
  - The amount of money involved in the investment.
- Agricultural organizations can profit from fiscal advantages for energy saving investments. To apply for the 'verhoogde investeringsaftrek', a certificate must be showed that is provided by the Flemish region. The forms for the application can be obtained at the *'Administratie Economie - Afdeling Natuurlijke Rijkdommen en Energie'*.

Landowners
The requirements that are in case for becoming an environmental- and urban permit makes that there are not so many places suitable for the building of energy plants. Land to build these plants is difficult to obtain which makes the owners of the land powerful. Biogas-E can help the company with their search for land.

Suppliers of biomass
Biomass is scarce, especially in Flanders. Shortage of biomass is expected in the near future in this region. This gives the owners of biomass high negotiation power. Owners of biomass also have high interests because they are searching for a destination for their waste sources. Sometimes, they have to pay for it and in other situations (depending on the type of biomass) they can ask money for it. Suppliers are diverse and the sources of biomass needed depend on the type of installation. The OVAM provides a list of (potential) suppliers that the company can contact.

Suppliers of installations
This group of stakeholders has high power because they own a strategic property. They also have high interests because selling and building installations is their core business. Several companies are active in Belgium. Section 5.4.4 of this report provides a list of companies that the Raedthuys Groep can contact for the delivery of installations.

Energy companies
Buyers of Green Certificates and electricity can fall within this quadrant or in quadrant B, depending on the current market situation. These companies have a high interest because they have a certificate obligation. Their power is high when there is an oversupply of Green Certificates, and low when there is a shortage of certificates. At the moment of writing there is an oversupply of certificates and energy companies belong to quadrant D. Because this situation can change within a short time period, this group of stakeholders is mentioned in both quadrants.

The Raedthuys Groep is an independent producer of renewable energy that generates revenues from the sale of Green Certificates.
Although Green Certificates are a standardized product, the company can differentiate themselves from competitors in the way the certificates are offered.
Certificates can be traded on both long term and short term. Trading is possible through the trading platforms of Belpex and Certexo or through direct sales. In the last situation, it is common that the company that wants to sell the certificates sends an offer to energy supplying companies. Contact information is available at the VREG and CWAPE. If the supplying company is interested in the offer, a contract can be enforced. Contractual agreements are often negotiated. Included in the contract are agreements about:

- The product package, what will be sold. It is possible to sell a fixed amount of certificates, the whole production of an energy plant including certificates and electricity, etc.
- The term. Contracts can involve a single transaction or agreements for several years.
- The price to pay for the certificates. In general the higher the risks for the selling company the higher the price paid for the certificates and vice versa (long term vs. short term). The Raedthuys Groep will benefit from the establishment of long-term contracts, to guarantee a stable cash flow. Often, buying companies pay less for certificates bought on the long term ten on a short term.
- Force majeure clauses. It is possible that, due to circumstances, the company is not able to deliver the products described in the contract.

Transmission Network Operator

The Transmission Network Operator is ELIA. The company should contact ELIA when a connection to the grid should be realized. A standard procedure will be followed to get a connection to the grid. Elia needs a list of technical specifications of the installation and a feasibility study will be carried out. When the results of the study are positive, a contract can be signed and the connection will be realized. The total procedure will take about six months.

7.5 Conclusions

This chapter provides an answer to the fifth research question: *"Which recommendations can be given with regard to the marketing approach for the target market?"*

Projects need a specific marketing approach, which is essentially different from the marketing of products and services. Project marketing describes the collective body of relevant players (stakeholders) and should focus on the establishment of relationships with those stakeholders. Several parties are identified that have a stake in the development of bioenergy projects in Belgium. It is important for the Raedthuys Groep to establish a good relation with these parties in case of entering the Belgian market. The identified stakeholders fall within quadrants B, C and D. Socio-political stakeholders are very influential to this sector. Governments on several levels are the driving force behind the growth of the renewable energy sector. Governments have legislative and regulating power and shape the business environment for a company like the Raedthuys Groep. As a single firm, it is not possible to influence the position of these institutions to create a more favorable business environment.

Other powerful stakeholders are suppliers of biomass and owners of land. Their resources are a strategic property for a development firm.

Neighborhoods and action groups have low power and high interest because the establishment of an energy plant can influence their living situation. Marketing activities can be used to change their attitude towards bioenergy and create a positive image for the company.

The position of stakeholders can change over time, due to company's efforts or a changing environment and can affect the relationship with the company. The power of energy companies as buyers of the Green Certificates and energy is fluctuating due to changing demand and supply conditions. For investors, the economic situation has influence on their intentions to finance projects. This is especially relevant for investors and energy companies. Both are placed in two quadrants.

Chapter 8: Conclusions and recommendations

8.1 Introduction

This final chapter presents the conclusions, reflections and recommendations. First, conclusions from the research project are described. The conclusions will answer the research question as formulated in section 1.2. Following to the conclusions, a reflection is written and recommendations are given.

8.2 Conclusions

Conclusions are described for the individual steps of the research. Each step answers one of the sub-questions described in section 2.7.

Market screening

From the MCDA analysis on a country level can be concluded that there are foreign markets that offer potential to the Raedthuys Groep for the development of renewable energy projects. The markets of Germany and Belgium are most favorable. The UK can also be taken into consideration, depending on the company's preferences. Because of the significant lower score of Poland and Greece, these countries can be eliminated as a topic for further research. In all countries that were part of the scan, difficulties will be expected with regard to the development of renewable energy projects. Although several barriers are experienced at the home market as well, it has a high score in the MCDA analysis. Therefore, the Netherlands should remain to be the priority of the Raedthuys Groep. Based on additional market and competitive characteristics, the bioenergy sector in Belgium is chosen as a topic for further research.

Internal analysis

This analysis gives insight into the company's products, resources and commitment towards entering foreign markets. The core business of the company does not exist of a single product or service, which can be marketed abroad through exporting, contractual agreements or foreign investment. The core business of the Raedthuys Groep consists of a whole range of activities involved in the development and exploitation of renewable energy projects. The company has the disposal over technological knowledge, management skills and financial resources which they can use to develop projects in foreign countries. The company is lacking knowledge of foreign markets which is considered as crucial by the management itself. Company characteristics like mission, vision and goals focus on enlarging the company's position on the home market. However, for a SME like the Raedthuys Groep that operates at a dynamic market, it is common to made ad-hoc decisions. It is expected that commitment will increase when foreign markets show opportunities to the company. Therefore it is not relevant to judge about the company's commitment towards foreign markets only based on their formal strategy.

External analysis

In the fourth chapter of this thesis, an in-depth analysis of the bioenergy sector in Belgium is made. In Belgium, the regions of Wallonia, Flanders and Brussels should be treated as separate markets with regard to the development of the bioenergy sector. The regional governments are responsible for the development of the sector. Because of the limited size and high urbanization degree, Brussels is not interesting as a topic for research and is eliminated on forehand.

A support system for the development of renewable energy exists; as an EU member state Belgium should respect the EU directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources. All regions make use of the same system under different conditions. Green Certificates are issued for the production of electricity from renewable sources. This system is not the

most effective to stimulate the development of the sector. The market system leaves uncertainties for investors with regard to the cash flows because it is hard for a producer to enforce long-term contracts with buyers of the certificates. The system does not guarantee a fixed price per MWh produced over the lifespan of the installation and the minimum and maximum prices are subject to change. As a consequence, banks are reluctant to finance the projects. Another drawback to the system is that the market prices do not make a difference between technologies so it is most supportive to the mature technologies. In both regions, the development of bioenergy installations is subject to legislation which makes the realization of a project difficult. Restrictions on input sources and the digestate hinder the issuing of environmental permits and the supply of sources to run the installation. These barriers are in favor of decentralized production of bioenergy. The larger the installation will be, the higher the barriers that can be expected. In both regions, the bioenergy sector has reached the growth phase. There is a future potential for bioenergy because new installations have to be build to reach the targets. A lot of installations are expected to be built in the near future (2010-2015).

The following table shows the main conclusions of Porter's five forces framework, applied to the bioenergy sector in Belgium. The overall conclusion is that the industry has a reasonable attractiveness and that the influence of governance is large to all forces.

<table>
<tr><td>Buyers:
Energy companies are the buyers of Green Certificates and energy produced by a bioenergy plant. Currently, their level of power is moderate but varies over time. Enough Green Certificates are available at the moment which leaves negotiation space for energy companies. Enforcing long term contracts with buyers is difficult for owners of Green Certificates. It is hard to make predictions on the future situation.</td><td>Substitute products:
No real competition from substitute products exist, which increases the attractiveness of the market. Energy companies have the obligation to buy Green Certificates so there will always be a demand from energy companies.</td></tr>
<tr><td>Suppliers:
Due to an increasing demand and a more or less stable production, the power of biomass suppliers is expected to be large in the future, especially in Flanders where scarcity is expected. When prices of biomass increase, this will influence the profitability of the project. The power from suppliers of installations is not very large as an increasing number of firms are entering this market.</td><td>New entrants:
The foundation of an energy plant is subject to restrictions and legislation, but it is not per definition more difficult for a new entrant than it is for an existing firm. A connection to the grid is guaranteed in any case. Creating economies of scale and demand side benefits of scale are expected to be difficult through governmental policies and restrictions. Nevertheless, the high resource dependency (availability of biomass and land) capital requirements and strict legislation are also barriers for firms to enter this industry.</td></tr>
<tr><td colspan="2">Competitive rivalry within industry:
The rivalry among existing competitors within the industry is not very intense; the market is young and still developing. In both regions are several project developers active but none of them has reached a dominant position yet.</td></tr>
</table>

Table 14: Conclusions from the five forces analysis.

Several differences on various aspects exist between the two regions that were part of the research. These aspects can make the company decide to enter one region instead of the other, although it is difficult base a judgment on these research findings. The information collected about Wallonia is limited. The main differences that were found during this research are outlined in table 15.

Flanders	**Wallonia**
➢ Dutch is the spoken language. ➢ Scarcity of biomass is expected in the near future. ➢ Green Certificates are issued for every MWh renewable energy produced. ➢ Support through Green Certificates is guaranteed over a period of ten years. ➢ Plants can be established in agricultural areas when 60% of input sources are coming from agricultural products. ➢ The total installed capacity is approximately 540 MWe. ➢ Target of 13% renewable energy in 2020 to be followed.	➢ French is the spoken language. ➢ Availability over biomass from domestic sources, especially from wood industry. ➢ Green Certificates are granted for the amount of CO2 avoided. ➢ Support through Green Certificates is guaranteed over a period of fifteen years. ➢ Plants can be established in agricultural areas only if the owner of the plant possesses the fields or farm lands or if the plant is beneficial to the general public. ➢ The total installed capacity is approximately 193 MWe. ➢ The target of 13% will be probably raised to 33.25% in 2020.

Table 15: Comparison between Flanders and Wallonia.

Entry strategy

When deciding to enter the Belgian market, investment entry is the most feasible option. This can be realized through a joint-venture or strategic alliance with a local partner or through the acquisition of a local company.

Considering the company's goals and activities, only investment modes of entry are appropriate and in an exceptional case turnkey contracts.

Because of the risks involved in the start-up of an energy plant in Belgium, collaborating with a partner is preferred over a sole venture. Aspects that can make market entry especially difficult for the Raedthuys Groep are the supply of input sources, the uncertainties in the market based subsidy system and the French language in Wallonia.

Marketing approach

Stakeholder mapping has shown that there are multiple stakeholders involved in the development and exploitation phases of bioenergy projects. Together, these stakeholders form the 'milieu' in which the company will operate. Neighborhoods and action groups fall in quadrant B which means that they have high interest and low power. Marketing activities can be used to change the often negative attitude of these groups towards the development of projects in their neighborhood.

The key players in quadrant D are mainly governmental institutions that act according to the law and can barely be persuaded. These actors shape the environment in which the Raedthuys Groep should operate. Other key players are industry actors; suppliers, buyers, network operators and investors.

The company should take into account that the position of stakeholders is not always fixed. Stakeholders can move to other quadrants. At this moment, this is especially relevant for investors and

suppliers of installations. The company should recognize this, because the relationship with the stakeholders will also change.

General conclusion
The main conclusions are summarized below and will give a brief answer to the problem *"Which of the selected countries has the best opportunities for the Raedthuys Groep to start renewable energy projects in, and which recommendations can be given about entering the target market and the marketing approach?"*

When the Raedthuys Groep wants to venture into foreign markets, they should focus on the countries of Western Europe. Research has shown that Germany and Belgium are the preferred options. The market research is carried out on a country level and no differentiation is made between sectors. From the first part of the research one can also conclude that the situation in the home market is most favorable to the Raedthuys Groep.
The bioenergy sector in Belgium is chosen by the company as a topic for further analysis. The three regions of Belgium should be treated as separate markets, because the development of the sector is a responsibility of the regional governments.
From an in-depth analysis of this market can be concluded that the regions of Flanders and Wallonia have potential for the development of new energy plants, although this is not unlimited and several barriers have to be overcome.
In both regions, the development of bioenergy plants is subject to strict rules and regulations, as it is the case in most countries. The regulatory framework is often considered as a barrier to the development of the sector, because it puts a cap on the opportunities for developers.
Another barrier is to secure a stable cash flow from the produced energy. A stable cash flow is not guaranteed by the subsidy system that is in place in both regions and can be realized only through enforcing long term contracts for the sale of Green Certificates with energy companies. If the company does not succeed to do so, it is difficult to obtain credit from a bank to finance the project.
In Flanders, chances for the Raedthuys Groep lay in the development of small scale energy plants (10.000-20.000 tonnes a year). These kinds of plants have a good chance to receive the necessary permits and contract and control the input sources to run the installation. Contracting input sources is especially difficult in Flanders. In Wallonia, this barrier is expected to be lower because the region has a larger availability over input sources. Doing business in Belgium is expected not to be easy because of the large cultural distance and the language problem in Wallonia. The foundation of a joint-venture with a local partner or the acquisition of a local partner are the favored entry modes, also because market knowledge is lacking and the company does not own strategic resources like land and input sources.
The influence of governance is large in all aspects. Government shapes the business environment for a company like the Raedthuys Groep. Governmental institutions are stakeholders that cannot be influenced. The marketing strategy of the company is aimed at the establishment of relationships with stakeholders.

8.3 Reflections

This section will look back to the research that is carried out. The experiences of the researcher are described and a critical review on the research is given.

Theory and methodology
It was sometimes difficult to find appropriate theories that could be applied to the research topic. General literature about foreign market entry is aimed at a single product or service, which is

essentially different from the development of projects, the purpose of the Raedthuys Groep. As a solution to this problem, general theories are used which are complemented with case specific theories. The theories used were helpful in carrying out the research process and contributed to an answer to the problem.
The largest part of the data sources used to write this thesis consisted of secondary data. With respect to the researcher's capabilities, the available time and money, it was often not possible to collect primary data. Although the secondary data are judged on validity, reliability and measurement bias, it was especially difficult to find data that is up-to-date. Primary data was collected by phone interviews, face-to-face interviews and email contact with organizations that could provide the necessary information. Not all organizations that were contacted were able or willing to provide the requested information. Because of the researcher's limited knowledge about the French language, no organizations in the region of Wallonia are approached for primary information.

Market screening and selection
The researcher did not possess knowledge of the renewable energy sector before starting the research. With the knowledge gained during the research, some things would be done a little bit different. Some changes would be made in the criteria selection process in section 3.2. The reflection in section 3.4 has shown that criteria that were not chosen in the first instance play a large role in the final decision making stage.
It was also a possibility to add minimum values to the criteria that will make it possible to eliminate some countries on forehand if they score lower than the accepted minimum. The researcher decided not to add minimum values because it was difficult to decide on the minimal values beforehand.
Not all countries of the European Union could be incorporated in the research. The European market for renewable energy development was not subject to research before. The choice for the five countries that are part of this analysis was not based on research findings. Therefore it is possible that other countries within the EU are more favorable to renewable energy development.
Countries were the unit of analysis. No differentiation was made between the different technologies. Source availability was one of the criteria but with this limited information it was difficult to select the source that offers the best opportunities judged from different viewpoints (competition, potential, subsidies, etc.). Only a selection of criteria that could be based on secondary data and were measureable are incorporated into the analysis. It became clear that it is rather difficult to make a decision about the most promising market without doing in-depth research.

Internal analysis
It was difficult to give a concrete description of the company's product factors. It consists of a whole range of activities, which is slightly different from the description in the theory. The company's process structure is based on theory related to the PRINCE2 project management software. It took a lot of time to find proper literature about PRINCE2 and to understand the theories about project management, because the subject was new to the researcher.

External analysis
During the research, it was experienced that the renewable energy sector is very complex and complicated. This was also the case in Belgium, where large differences exist between the regions. The renewable energy sector is not always a responsibility of the federal government. When doing the research again, it should be therefore considered to describe a foreign market as a region instead of a country.
It was difficult to execute the whole research within the planned time period because of those differences. As mentioned in the introduction, the focus of this analysis was on the availability of

subsidies, legislation, market situation and stakeholders. The level of detail of this analysis is adapted to the time available to carry out the research. The language problems with regard to Wallonia were larger than expected. It took a lot of time to obtain the required information. It was especially difficult to find out which rules and regulations are applicable. In case of doing the research again with limited time available, it would be better to focus on the region of Flanders only and do more intensive research for this region. Now, it is difficult to give a judgment about the chances for the company in Wallonia because the judgments are based on limited information.

Entry strategy
Entry modes are limited for the Raedthuys Groep. Recommendations about the most suitable entry mode are given, which is in this case a joint-venture with a local partner or the acquisition of a local company. The favored options are described on a general level. Characteristics of local partners are described, but possible partners are not yet identified.

Marketing approach
The marketing of projects is essentially different from the marketing of products and services. It took a lot of time to define a marketing approach suited to company. The theory has shown that marketing activities are principally relational and should be aimed at several stakeholders that are involved in the project. It was difficult to describe the target group for the company because there are many and each of them needs a specific approach. To me, the power-interest matrix was helpful to group the stakeholders and to describe their position in relation to the company.

Results versus objective
The researcher did not possess any background information about the topic and the bioenergy sector in general. Therefore, comparison material was not available and it was rather difficult to give a good judgment about the situation in the target market and to put things into the right perspective.
When keeping this limitation in mind, I think I succeeded in finding an answer to the problem. The results of the research are in line with the objective draught up before starting the research phase.

8.4 Recommendations

The following recommendations can be given to the Raedthuys Groep with regard to this Master's thesis. The recommendations can be divided into recommendations based on the conclusions and recommendations based on the reflections. Recommendations are ordered by priority.

Recommendations based on conclusions:

- For the company, it is advisable to focus on the Netherlands as target market. The MCDA analysis has shown that the situation in the Netherlands is good in comparison to the other countries and the company can profit from several home market advantages. This is in contrast to the company's expectations. In all countries that were part of the first scan, the development of renewable energy projects is a complicated and time consuming process. An in-depth analysis has confirmed that this is also the case in Belgium. The country specific legislation and procedures can make it difficult for the Raedthuys Groep to be successful at multiple markets. Therefore, it is recommended to focus on one country, preferably the home market and enlarge their portfolio here. Market research can be helpful to identify new opportunities at the home market.
- The market screening has shown that the situation in Germany for the development of renewable energy projects is very good. With regard to the company's motives to enter foreign markets, it is recommended to make Germany the topic of an in-depth analysis as well. The

preferred sector should be chosen by the company, or be incorporated in the research. According to the market screening, Germany has a large availability over renewable energy sources. This Master's thesis provides the company a method for the execution of the research. With the same research objective in mind, the in-depth analysis of the Belgian market and the models described in this thesis can serve as a guideline. When an analysis of Germany is made, the company will be able to make a comparison of the market situation in the Netherlands, Belgium and Germany. Comparison material and experiences can help the company to give a better judgment about the situation in a market and to choose a foreign target market. It is wise to make a comparison between Belgium and Germany based on detailed information from an in-depth analysis. This Master's thesis has shown that it is difficult to compare the market situation in both countries because the information provided was not sufficient.

- Because the situation in a market can change, it is recommended to repeat the market screening on a regularly basis to keep the information up-to-date. A document with useful sources to find the necessary information is provided to the company. Another recommendation is to incorporate all countries of the EU in the market screening and not just a selection of them. It is possible that other countries, that are not selected by the company in the first place, have potential for the development of renewable energy projects.
- Before making the decision to enter Belgium or not, it is recommended to do research to the opportunities for other technologies in the biomass sector and the renewable energy sector in general. The attractiveness of the market for bioenergy depends partly on the opportunities that the other technologies can offer. In accordance to their mission, a market is interesting when it has a future potential and the Raedthuys Groep can establish themselves as a main player. 'Product development' as growth strategy through the focus on multiple technologies can contribute in realizing the position that the company is admiring for.
- It is important for the company to establish a network in a new market. Joining branch organizations and interest groups is therefore recommended. In case of entering the region of Flanders, the Raedthuys Groep should contact Biogas-E when entering the Flemish bioenergy sector. This platform has several functions which can be helpful to the company. Biogas-E can help them to search for available projects and partners in Belgium and guide them through the applicable legislation. This organization also performs a sensibilizing role to the general public and neighborhoods. Collaboration with regard to these aspects can also help the company to improve the image of bioenergy among citizens and neighborhoods.
- Hiring a French speaking person is recommended when considering entering the region of Wallonia. This person can support the management of the Raedthuys Groep with the interpretation of the market situation and legal situation in Wallonia. In a later stadium, this person can lead the negotiations with local partners.
- The main limitation for the company is their lack of knowledge from foreign markets and cultures. In case of Wallonia, the French language can also be considered as a problem. There is a large cultural distance between the Netherlands and Belgium and this should not be underestimated. Therefore it would be very difficult for the Raedthuys Groep to enter the market without collaborating with foreign partners.

Recommendations based on reflections:

- This research project has focused on different steps in the international market entry strategy. Each individual step can be subject to more intensive research. Because this research has only covered five countries, it is recommended to include the other EU countries in the MCDA analysis as well. This to find out which country has the best opportunities for renewable

energy development, independent from the company's preferences. The MCDA analysis can also be carried out on resource level (wind energy bioenergy). An in-depth analysis is carried out for the bioenergy sector in Belgium. Several factors that are described here can also be applied to other sectors. Before deciding to venture in Belgium, it is useful to make an analysis of the other sectors.

- The region of Wallonia has shown to have potential for the development of bioenergy projects. Because the information given in this thesis is limited, future research can focus on this region.
- Chapter six has focused on the entry strategy. A joint-venture is the most appropriate strategy here. Finding the right partner on this market can also be a subject for future research.

References

Books and scientific articles:

Austin, J.E., (1990). Managing in developing countries. New York, Free Press.

Ball, D.A., McCulloch, W.H., Geringer, J.M., Minor, M.S., & McNett, J.M., (2008). International Business: The challenge of global competition. 11th edition. New York: McGraw-Hill Irwin.

Baron, D.P. (1995) The Nonmarket Strategy System. Sloan Management Review, Fall, pp. 75-85.

Beim, G., & Lévesque, M. (2006). Country Selection for New Business Venturing: A Multiple Criteria Decision Analysis. Long Range Planning vol. 39, pp 265-293.

Bentley, C. (2003). PRINCE2: A practical handbook. Second edition. Burlington: Butterworth-Heinemann.

Cova, B. and Ghauri P.N., Salle, R. Project Marketing: Beyond Competitive bidding. Chichester: John Wiley; 2002.

Cova, B. and Holstius, K. (1993) How to Create Competitive Advantage in Project Business. Journal of Marketing Management. 9, pp. 105-121.

Hedeman, B., Fredrikz, H., Vis van Heemst, G. (2007). Projectmanagement op basis van PRINCE2. Third edition. Zaltbommel: Van Haren Publishing.

Jansson, H. (1989) Marketing to Projects in South-East Asia, in Cavusgil, S.T. (Ed.), Advances in International Marketing, Vol. 3, pp. 259-276. Greenwich: JAI Press.

Johnson, G., Scholes, K., & Whittington R. (2008). Exploring Corporate Strategy. 8th edition. Edinburgh Gate: Pearson Education.

Mendelow, A. (1991) Proceedings of the 2nd International conference on Information Systems. Cambridge, MA.

Mirza, U.K., Ahmad, N., Majeed, T., Harijan, K. (2007). Wind energy development in Pakistan. Renewable and Renewable Energy Reviews vol. 11, pp 2179-2190.

Painuly, J.P. (2001) Barriers to renewable energy penetration; a framework for analysis. Renewable Energy vol. 24, 73-89..

Porter, M.E. (1980) Competitive Strategy: Techniques for analysing industries and competitors. Free Press.

Porter, M.E. (1985) Competitive Advantage: Creating and Sustaining Superior Performance. Free Press.

Porter, M.E. (2008) The five competititive forces that shape strategy. Harvard Business Review. January 2008, 79-93

Root, F.R. (1994). Entry Strategies for International Markets. 1st edition. San Francisco: John Wiley & Sons.

Roozenburg, N.F.M., and Eekels, J. (2001). Productontwerpen, structuur en methoden. Tweede druk. Utrecht: Uitgeverij Lemna BV.

Saunders, M., Lewis, P., Thornhill, A. (2007). Research Methods for Business Students. 4th edition. Edinburgh Gate: Pearson Education.

Skaates, M.A. and Tikkanen, H. (2003). International Project Marketing: an introduction to the INPM approach. International Journal of Project Management . Vol. 21, pp 503-510.

Vasconsellos, e Sa J. (1988). Some empirical evidence on a contingency theory of success factors. European Management Journal, 6.

Walker, O.C., Boyd, H.W., Larréché, J.C. (1991), Marketing Strategy: planning and implementation. Second edition. Homewood, Ill: Irwin.

Websites:

http://www.erec.org/policy/national-policy.html Consulted in April/May 2009
http://www.futures-e.org/ Consulted in April/May 2009
http://www.green-x.at/ Consulted in April/May 2009
http://ec.europa.eu/energy/climate_actions/doc/2008_res_working_document_en.pdf Consulted in April/May 2009
http://ec.europa.eu/climateaction/index_nl.htm Consulted in April/May 2009
http://ec.europa.eu/energy/climate_actions/doc/2008_res_working_document_en.pdf Consulted in April/May 2009
http://www.erec.org/policy/national-policy.html Consulted in April/May 2009
http://www.transparency.org/news_room/in_focus/2008/cpi2008/cpi_2008_table Consulted in April/May 2009
http://info.worldbank.org/governance/wgi/index.asp Consulted in April/May 2009
http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables Consulted in April/May 2009
http://www.bankintroductions.com/currency.html Consulted in April/May 2009
http://www.geert-hofstede.com/ Consulted in April/May 2009
http://www.geni.org/globalenergy/library/renewable-energy-resources/world/europe/index.shtml Consulted in April/May 2009
http://eur-lex.europa.eu/nl/index.htm Consulted in April/May 2009
http://www.doingbusiness.org/economyrankings/ Consulted in April/May 2009
http://www.ucte.org/resources/dataportal/ Consulted in April/May 2009
http://www.res-progress.eu/ Consulted in April/May 2009
http://www.eufores.org/index.php?id=29 Consulted in April/May 2009
http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables Consulted in April/May 2009
http://www.vreg.be/nl/index.asp Consulted in April-July 2009

http://www.cwape.be/ Consulted in April-July 2009
http://www.evd.nl/zoeken/showbouwsteen.asp?bstnum=225612&location=&highlight=belgie%20duurzame%20energie Consulted in April/May 2009
http://www.erneuerbare-energien.de/inhalt/43839/3860/ Consulted in April/May 2009
http://www.evd.nl/zoeken/showbouwsteen.asp?bstnum=199787&location=&highlight=duitsland%20duurzame%20energie Consulted in April/May 2009
http://www.restats.org.uk/capacity.htm Consulted in April/May 2009
http://www.berr.gov.uk/energy/statistics/source/renewables/page18513.html Consulted in April/May 2009
http://www.nfpa.co.uk/about.html Consulted in April/May 2009
http://www.r-e-a.net/policy/renewables/electricity/RO/ Consulted in April/May 2009
http://www.investingreece.gov.gr/default.asp Consulted in April/May 2009
http://www.cres.gr/kape/index_eng.htm Consulted in April/May 2009
http://www.selasenergy.gr/legislation1_en.php Consulted in April/May 2009
www.cbs.nl Consulted in April/May 2009
http://www.senternovem.nl/sn/index.asp Consulted in April/May 2009
http://www.pigeo.org.pl/index.php?lang=EN Consulted in April/May 2009
http://www.evd.nl/zoeken/showbouwsteen.asp?bstnum=218754 Consulted in April/May 2009
http://www.paiz.gov.pl/files/?id_plik=10514 Consulted in April/May 2009
http://www.eea.europa.eu/publications/eea_report_2008_6 Consulted in April/May 2009
http://www.erec.org/policy/national-policy.html Consulted in April/May 2009
http://www.energy.eu/ Consulted in April/May 2009
http://nui.epp.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_ind_331a&lang=en Consulted in April/May 2009
www.iea.org Consulted in April/May 2009
www.evd.nl Consulted in April/May 2009
www.valbiom.be Consulted in July 2009
http://www.energie.wallonie.be Consulted in June 2009
http://www.minaraad.be Consulted in June 2009
http://ovam.be Consulted in June 2009
http://biogas-e.be Consulted in May-July 2009
http://ode.be Consulted in June 2009
www.vea.be Consulted in May/June 2009
http://invest.belgium.be Consulted in June 2009
http://www.ib.fgov.be/legal.htm Consulted in July 2009
http://www.vlm.be Consulted in June 2009
http://www.greengas.net/output/page50.asp Consulted in July 2009
http://www.dlv.be/ Consulted in July 2009
http://www.machiels-group.be/ Consulted in July 2009
http://www.thenergo.eu/ Consulted in July 2009
http://www.eco-projects.com/ Consulted in July 2009
http://www.envitec.be/ Consulted in July 2009
http://www.biogastec.com/ Consulted in July 2009
http://www.trevi-env.com/nl/index.php Consulted in July 2009
http://www.colsen.nl/nl/bvba/index.html Consulted in July 2009
http://www.host.nl/ Consulted in July 2009
http://vanderwiel.nl/activiteiten/energie-centrales?steID=1&catID=106 Consulted in July 2009
http://www.water-leau.com/default2.aspx?PageId=123 Consulted in July 2009

Appendices

Appendix 1: Factors in the external environment of the Raedthuys Groep

Appendix 2: MCDA modeler's road map

Appendix 3: Description of the PRINCE2 theory

Appendix 4: Quick scan overview

Appendix 5: Sensitivity analysis

Appendix 6: Environmental permit procedure Flanders

Appendix 7: Overview installations under development in Flanders

Appendix 8: Overview availability of biomass sources Flanders

Appendix 1: Factors in the external environment of the Raedthuys Groep

	Johnson	Mirza	Painuly	Root	Ball
Environmental factors:					
Political/regulatory (institutional)	x	x	x	x	x
Economic/Financial	x	x	x	x	x
Socio-Cultural	x		x	x	x
Technological	x	x	x		
Environmental	x		x		
Legal	x				x
Infrastructural		x	x		
Geographical/Cultural distance			x		
				x	
Market/Industry factors:					
Competition(competitive structure)	x		x	x	x
Suppliers	x		x	x	
Potential entrants	x			x	
Buyers	x			x	
Substitutes	x				
Size of market			x	x	x
Marketing infrastructure				x	x
Market acceptance			x	x	
Profit potential			x	x	
Necessary level of adaptation				x	
Availability from existing production facilities				x	
Company sales potential				x	
					x
Home country factors:					
Characteristics of domestic market				x	
Production costs				x	
Policies of the home government				x	

Appendix 2: The MCDA road map proposed by Beim and Lévesque (2006)

1. *Criteria Identification.* Decision makers wishing to approach a country selection problem with this MCDA methodology are encouraged to add or delete criteria based on their industry and situation. The set of criteria must be non-redundant and judgmentally independent. It must also be sufficiently complete as a collection, but as simple and concise as possible, and compatible with the time and effort that decision makers are willing to allocate when working with the decision modeler. In their description of a MCDA, Roozenburg & Eekels (1998) added validity and accessibility.
2. *Listing of alternatives.* Decision makers may be confronted with a set of alternatives too large to manage. Decision modelers can use pre-screening methods to eliminate clearly inferior alternatives from the start and therefore limit the number of alternatives to a manageable amount. Overlapping of alternatives should be avoided.
3. *Quantification of each alternative under each criterion.* The assessment of the performance – or score – of an alternative on each criterion can be an undisputable, measurable quantity, or a subjective, qualitative evaluation. This quantification is generally performed jointly by MCDA modelers and experts in the subject matter. For value measurement models, performance is assessed on an interval scale of measurement containing minimum and maximum reference points. When the performance of an alternative is assessed in terms of a subjective description, (e.g. good or bad), this description is later converted into a numerical value, in relation to the specified reference points.
4. *Translation of the quantification into a measure of value.* Given an alternative *a€A* and a 'lowest level' criterion (on a hierarchical structure) *i* with *i€ {1,….I},* let *zi(a)€zi* be a measure of performance of alternative *a€A* with respect to criterion I, where *i* is the number of criteria under which alternatives are evaluated and Zi the set of possible scores for criterion *i. zi(a)* may be defined on a natural cardinal scale, on a constructed ordered categorical scale, or on an ordinal scale. The axioms of MAVT state that there exists a value function *v(zi(a))* in [0,1]) such that a is preferred to *a'* on criterion *i* if and only if *v(zi(a)) > v (zi(a'))*. While the origin and scale of *v(zi(a))* are arbitrary, two reference points *zi0* and *z*i* must be defined such that *v(z01(a)) =)* and *v(z*i(a)) = 1*. These reference points may be local (set to best and worst measures of performance expected to occur in realistic situations). The use of a common unit allows the MCDA modeler to aggregate the value functions of each criterion into an overall value function.
5. *Selection of weights.* Not all criteria in a MAVT application will carry the same 'weight'. This step is the one most often debated. In MAVT models, the weight of a criterion directly reflects the relationships between scores in that criterion and scores on all other criteria. Weights and measurement scales are intimately related, and the weight of a higher level criterion is the sum of the cumulative weights of its sub-criteria. Weight determination usually involves interaction between MCDA modelers and decision makers, in a process commonly known as weight elicitation. When properly elicited, resulting weights are valid and represent trade-offs that decision makers are willing to make. The robustness of the country selection decision is tested by conducting sensitivity analysis. This analysis demonstrates under what conditions (for instance when changes occur to a measure or a weight) a selected country is outranked by another.
6. *Identification of the favored option(s).* Once criteria weights are identified, the MCDA modeler aggregates value functions *v(zi(a))* for each criterion *i* in an attempt to sort out the degree of preference that each decision option enjoys. The simplest approach to the aggregation is a weighted sum of the value functions *v(zi(a)).*

Appendix 3: Description of the PRINCE2 theory

Processes:	Explanation
Starting up a project	This is the first phase of PRINCE2. The goal is to describe conditions under which the development of a project takes place. During this process, the project plan will be composed, a risk log and a plan for the phase initiating the project are produced.
Directing a project	These sub processes are running through the whole life cycle of the project. The process focuses on maximizing the chance that the project will be successful. Directing a project is a task for the key decision makers and has 5 major steps. Those include authorization of the project plan and business case, approving the project go-ahead, make sure the project remains justifiable, monitoring progress and ensuring the project comes to a controlled close.
Initiating a project	This process prepares the information on whether there is sufficient justification to proceed with the project. A management basis should be created and a Project Initiation Document should be prepared against which success and progress can be measured.
Planning	Planning is a repeatable process which takes place in every stage. It involves designing a project plan, identify activities and dependencies, estimating efforts and resources and analyzing risks.
Controlling a stage	This phase describes the control and monitoring activities to make sure a stage stays in control. This stage is covered by activities like the authorization of work, gathering progress information, reporting and watching for changes.
Managing product delivery	This process makes it possible for the team managers to reach an agreement with the project manager about the work to plan and execute and to present the completed work to the project manager.
Managing stage boundaries	This process describes what should be realized towards the end of every stage and how the end of a stage should be reported.
Closing a project	This phase covers aspects that should be done at the end of the project, like measuring the project results and archivation of documents.

Components:	Explanation:
Business Case	The business case makes a comparison between the costs and benefits of the projects and must be draught up at the end of every stage.

Organizational Structure	The project organization exist of a Project Board and a Project Management Team.
Planning	PRINCE2 exist of several planning levels. With regard to the whole project there is project plan, which describes the phases in the project. There are also stage plans, which describes the planning per phase.
Controls	Control mechanisms are reporting, dividing the project into stages and decision moments.
Management of risk	To the management of risk belongs the setup of a project plan and project goals.
Quality in a project environment	Products should reach the quality standards of the customer which should be described in the product descriptions.
Configuration management	To work efficiently, products and documentation should be managed. To configuration management belong the identification, registration and management of the products during the project.
Change control	Change control is executed by the change authority that has a budget for making changes in the scope of the project and/or functionality.

Techniques:	**Explanation:**
Product based planning	PRINCE2 foresees in product based planning before planning of activities can be started. The following steps can be distinguished: ➢ Product breakdown structure ➢ Product description ➢ Product flow diagram
Change controls	This technique gives a procedure for the management of changes. Potential changes are treated like Project Issues. The following Project Issues can be distinguished: ➢ Change proposals ➢ Deviations from specifications ➢ Other Project Issues
Quality reviews	This is a standardized method to test the quality of the product. During the quality review, the following roles are present: ➢ Producer ➢ Chairman ➢ Reviewer ➢ Secretary

Appendix 4: Quick scan overview

Sub-criteria and measurement scale:	Country Rankings:
Political factors:	
Goals regarding to RE-development: 1: 6,2 - 7,7% 2: 7,8 - 9,2% 3: 9,3 - 10,8% 4: 10,9 - 12,3% 5: >12,4%	2: Poland 3: Belgium 4: Greece, Netherlands, Germany 5: UK
Effectiveness of supporting mechanisms: 1: Far below average 2: Below average 3: Average 4: Above average 5: Far above average	2: Poland 3: UK, Greece, Belgium 4: Germany 5: Netherlands
Stability of system: 1: very unstable 2: unstable 3: fair 4: stable 5: very stable	1: Netherlands 3: Belgium 4: UK, Poland 5: Germany, Greece
Duration of guaranteed support: 1: No guaranteed sum of subsidies 2: Tradable Green Certificates without minimum price over a p of 15 - 20 years 3: Tradable Green Certificates with minimum price over a period of 10 - 20 years 4: Guaranteed sum of subsidies over a period of 12 - 15 years 5: Guaranteed sum of subsidies over a period of 20 years	2: UK, Poland 3: Belgium 4: Netherlands 5: Greece, Germany
Corruption: 1: corruption perceptions index score 3,6 - 4,7 2: corruption perceptions index score 4,8 - 5,8 3: corruption perceptions index score 5,9 - 7,0 4: corruption perceptions index score 7,1 - 8,1 5: corruption perceptions index score 8,2 - 9,3	1: Poland, Greece 4: Germany, Belgium, UK 5: Netherlands
Political stability and absence of violence: 1: 10th - 25th percentile 2: 25th - 50th percentile 3: 50th - 75th percentile	

4: 75th - 90th percentile 5: 90th - 100th percentile	3: UK, Poland, Greece, Belgium 4: Netherlands, Germany
Overall government effectiveness: 1: 10th - 25th percentile 2: 25th - 50th percentile 3: 50th - 75th percentile 4: 75th - 90th percentile 5: 90th - 100th percentile	3: Poland, Greece 4: Belgium 5: Netherlands, UK, Germany
Regulatory quality: 1: 10th - 25th percentile 2: 25th - 50th percentile 3: 50th - 75th percentile 4: 75th - 90th percentile 5: 90th - 100th percentile	3: Poland 4: Greece 5: Belgium, Netherlands, UK, Germany
Economic Factors:	
Energy dependency 1: 0 - 20% 2: 21 - 40% 3: 41 - 60% 4: 61 - 80% 5: 81 - 100%	1: Poland 2: UK, Netherlands 4: Belgium, Greece, Germany
Currency stability: 1: Unstable/Dangerous 2: Fair 3: Stable 4: Very Safe 5: Euro (no currency risk)	3: Poland, UK 5: Netherlands, Belgium, Greece, Germany
Sociocultural Factors:	
Power Distance: 1: >21 2: 16 - 20 3: 11 - 15 4: 6 - 10 5: 0 - 5	1: Poland, Belgium, Greece
Individualism: 1: >21 2: 16 - 20	5: Netherlands, UK, Germany

3: 11 - 15 4: 6 - 10 5: 0 - 5	1: Greece 2: Poland 3: Germany 4: UK 5: Belgium, Netherlands
Masculinity: 1: >41 2: 31 - 40 3: 21 - 30 4: 11 - 20 5: 0 - 10	1: Poland, Germany, Greece, UK 2: Belgium
Uncertainty Avoidance: 1: >40 2: 31 - 40 3: 21 - 30 4: 11 - 20 5: 0 - 10	5: Netherlands 1: Belgium, Greece 2: Poland
Language: 1: No knowledge of country's language 2: Poor knowledge of country's language 3: Reasonable knowledge of country's language 4: Good knowledge of country's language 5: Native Language	4: Germany, UK 5: Netherlands 1: Greece, Poland, Belgium
Environmental factors: Opportunities for different sources of RE: 1: Very bad 2: Bad 3: Moderate 4: Good 5: Very good	4: UK, Germany 5: Netherlands, Belgium
Legal factors: Openness of system: 5: EU member states	3: Belgium, UK, Poland, Netherlands 4: Germany 5: Greece
Ease of doing business: 1: Ranking on list of EU countries between 21 - 25 2: Overall ranking between 16 - 20 3: Overall ranking between 11 - 15 4: Overall ranking between 6 - 10 5: Overall ranking between 1 - 5	5: All countries

	1: Greece, Poland
Transparency of grid extensions and costs of grid connections: 1: 0 - 20% 2: 21 - 40% 3: 41 - 60% 4: 61 - 80% 5: 81 - 100%	4: Belgium, Netherlands, Germany 5: UK
Infrastructural factors:	2: Poland 3: Germany, UK
Grid reliability: 4: 99,998% reliability 5: 99,999% reliability	5: Netherlands, Belgium, Greece
Grid Capacity: 1: >61% 2: 41 - 60% 3: 21 - 40% 4: 5 - 20% 5: 0 - 5%	4: Greece 5: Belgium, Germany, UK, Poland, Netherlands
Market factors:	1: Poland, Greece 2: UK 3: Germany
Present size of market for RES: 1: Very small market 2: Small market 3: Medium market 4: Large market 5: Very large market	5: Belgium, Netherlands
Total energy consumption: 1: 0-122 GWH/year 2: 123 - 244 GWh/year 3: 245 - 366 GWh/year 4: 367 - 488 GWh/year 5: >489 GWh/year	2: Belgium, Poland 3: Netherlands, Greece 4: UK 5: Germany
Horizontal market power: 1: 1 main generating company 2: 2 main generating companies 3: 3 main generating companies 4: 4 main generating companies 5: 5 or more main generating companies	1: Belgium, Poland 2: Netherlands, Greece 4: UK 5: Germany

Vertical market power: 1: Vertical integration between producer and TSO 5: No vertical integration between producer and TSO	1: Greece 2: Belgium
Geographical distance:	4: Netherlands, Germany 5: UK
Accessibility of country: 1: Poor connections with airports, not accessible by car 2: Moderate connections with airports, not accessible by car 3: Good connections with airports, all parts of country accessible 4: Parts of the country accessible by car within 5 hours, for the other parts of the country good connections with airports 5: Whole country accessible by car within 5 hours from Enschede	1: Germany, Greece 5: Belgium, Netherlands, UK, Poland 3: UK, Greece, Poland 4: Germany 5: Netherlands, Belgium

Operationalization of criteria and sources used.

Goals regarding to RE-development:

Growth percentage 2005-2020.
Interval between 6,2 - 13,7 (minimum-maximum value)
Scale is prepared by taking the difference between the minimum and maximum of the EU 27 divided into 5 equal categories.
Target setting methodology for sharing the 11,5% increase between member states:

* 2005 is the base year for the whole energy package
* 2005 share is modulated to reflect national starting points: a third of national growth between 2001 and 2005 is deducted from the 2005 actual share for those member states whose growth over the period exceeded 2%.
* 5.5% is added to the modulated 5.5% share of renewable energy for every member state.
* The remaining effort is weighted by the GDP.
* These two elements are added together to derive the full renewable energy share of total final

energy consumption in 2020.
* A cap is imposed to ensure that no Member State faces a target of 50% or more.
Source: Targets set by European Commission

Effectiveness of supporting mechanisms:
The effectiveness is a composite measure for wind-onshore 1998-2006, biomass 1998-2005, wind onshore 2006 and biomass 2006.
The scale is prepared by measuring the average effectiveness of the 27 EU countries.
Effectiveness is measured as absolute growth of normalized generation as a ratio of the additional potential.
Source: Fraunhofer, FUTURES-E regional workshop Ljubljana, April 11, 2008.

Stability of system:
Stability of supporting system over the period 1997-2009.
Based on number of modifications/adaptations made.
Source: OPTRES 2007.

Duration of guaranteed support:
Measures the attractiveness of the countries and the risks involved
Sources: national sources

Corruption:
Corruption is the abuse of power for private gain.
All EU-27 countries score between 3,6 - 9,3.
Scale is prepared by taking the difference between the minimum and maximum of all countries divided into 5 equal categories.
Source: World bank 2007

Political stability and absence of violence:
The governance indicators presented here aggregate the views on the quality of governance provided by a large number of enterprises,
citizen and expert survey respondents in industrial and developing countries.
Measuring perceptions of the likelihood that the government will be destabilized or overthrown
by unconstitutional or violent means, including politically motivated violence and terrorism.
Percentiles are set by the world bank.
Source: World bank 2007

Overall government effectiveness:
The governance indicators presented here aggregate the views on the quality of governance provided by a large number of enterprises,
citizen and expert survey respondents in industrial and developing countries.
Measuring the quality of public services, the quality of the civil service and the degree
of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's
commitment to such policies. Percentiles are set by the world bank.
Source: World bank 2007

Regulatory quality:
The governance indicators presented here aggregate the views on the quality of governance provided by a large number of enterprises,
citizen and expert survey respondents in industrial and developing countries.

Measures perceptions of the ability of the government to formulate and implement sound
policies and regulations that permit and promote private sector development
Percentiles are set by the world bank.
Source: World bank 2007

Energy dependency:
Energy dependency is measured as imports divided by gross energy consumption.
Source: Eurostat 2006

Currency stability:
Measures the level of currency risk.
Source: Bankintroductions 2008

Power distance:
Geert Hofstede's research gives us insights into other cultures so that we can be more effective when interacting with people in other countries. If understood and applied properly,
this information should reduce the level of frustration, anxiety, and concern.
But most important, Geert Hofstede will give you the 'edge of understanding' which translates to more successful results.
Power distance is the extent to which members of a society accept the unequal distribution of power among individuals.
Power distance is measured as the difference in score from the Netherlands.
For example, for power distance the Netherlands scores 38 and the UK scores 35. So the difference is 3 points.
Countries can score between 1 and 100.
Source: Geert Hofstede

Individualism:
Organizations operating in collectivistic cultures are more likely to rely on group decision making
than are those in individualistic cultures, where the emphasis is on individual decision making.
Source: Geert Hofstede

Masculinity:
The masculinity-femininity dimension is the degree to which the dominant values in a society emphasize assertiveness, acquisition
of money and status, and achievement of visible and symbolic organizational rewards (masculinity) compared
to the degree to which they emphasize relationships, concern for others and the overall quality of life (femininity)
Source: Geert Hofstede

Uncertainty avoidance:
Uncertainty avoidance is the degree to which the members of a society feel threatened by ambiguity and are rule-oriented.
Source: Geert Hofstede

Opportunities for different sources of RE:
The opportunities for the different RE sources (wind, bio, geo, hydro, solar)
Source: Global Energy Network Institute

Openness of system:
According to the EU directive, providing access to the grid is mandatory for all member states.
All countries score 5 due to binding EU-directive.
Source: European Commission

Ease of doing business:
The doing business index consist of 10 sub-indices that together value the ease of doing business in a country.
Categories are made by dividing the 25 EU countries (excl. Malta and Cyprus) into 5 equal groups.
Source: Doing business 2009

Transparency of grid extensions and costs of grid connections:
Stakeholder estimates about the transparency for grid connection costs and extensions.
Source: Fraunhofer Institute Systems and Innovation Research PROGRESS data 2007-2008 Based on Stakeholder experiences.

Grid reliability:
Grid reliability measures the amount of energy not supplied (major events) as a percentage of total supply.
Source: UCTE 2008

Grid capacity:
Indicator represents the share of projects with grid capacity problems.
Source: Fraunhofer Institute Systems and Innovation Research PROGRESS data 2007-2008 Based on Stakeholder experiences.

Present size of market for RES:
Based on installed capacity of wind, bio and geothermal energy
Scores are estimated due to lack of information
Source: National sources

Total energy consumption:
Total energy consumption in a year is an indicator for the size of the market.
Scale is composed by taking the difference between the minimum and maximum of the EU 27 divided into 5 equal categories.
Source: CBS 2006

Horizontal market power:
Companies are considered as "main" if they produce at least 5% of the national net electricity generation.
We assume that the more generating companies exist, the more competitive the market is.
Source: Eurostat European Electricity Market Indicators 2007

Vertical market power
In general, vertical integration between producer and TSO leads to a lack of competition.
It can give the owner of the transmission network an advantage over individual producers.
Source: Market actors

Accessibility of country:
Measures the accessibility of a future RES project

in the selected countries.
Starting point is Enschede
Based on flights from Schiphol, Dusseldorf or Munster airport
Source: Airline companies, map of Europe.

Appendix 5: Sensitivity analysis

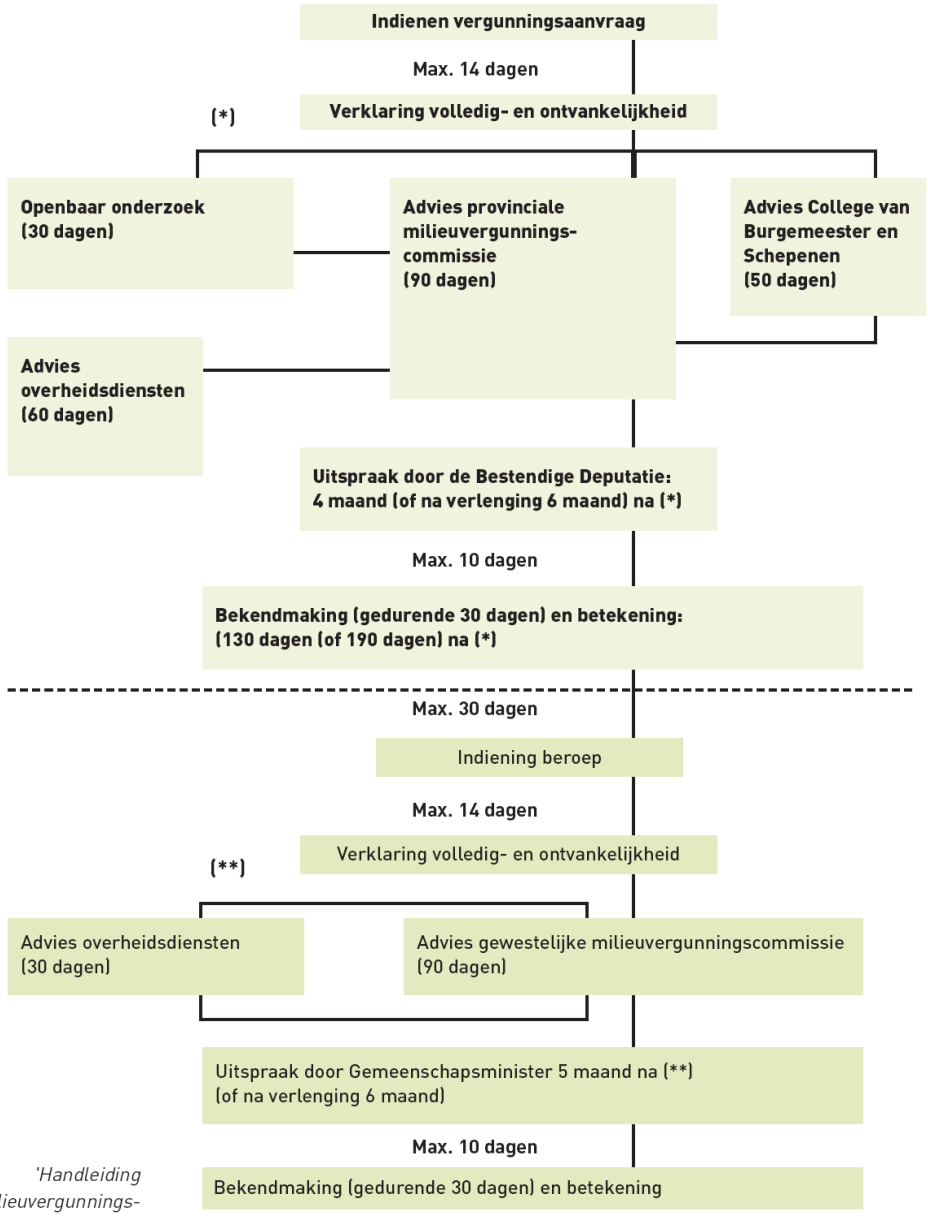
	Belgium	Germany	Greece	Netherlands	Poland	UK
Political/Regulatory (1)	3.5	4.5	3.5	4.1	2.5	3.9
Economic(1)	4.5	4.5	4.5	3.5	2.0	2.5
Environmental (1)	2.6	3.2	4.0	2.2	2.4	2.6
Sociocultural (3)	7.2	10.2	3.0	15.0	4.2	10.8
Legal (3)	14.0	12.0	11.0	14.0	8.0	13.0
Market (3)	7.5	11.3	4.5	10.5	10.5	13.5
Geographical (2)	10.0	8.0	6.0	10.0	6.0	6.0
Other (2)	15.0	12.0	7.5	15.0	9.0	10.5
Total	**64.3**	**65.7**	**44.0**	**74.3**	**44.6**	**62.8**

	Belgium	Germany	Greece	Netherlands	Poland	UK
Political/Regulatory (1)	3,5	4,5	3,5	4,1	2,5	3,9
Economic(2)	9,0	9,0	9,0	7,0	4,0	5,0
Environmental (2)	7,8	9,6	12,0	6,6	7,2	7,8
Sociocultural (2)	4,8	6,8	2,0	10,0	2,8	7,2
Legal (1)	4,7	4,0	3,7	4,7	2,7	4,3
Market (1)	2,5	3,8	1,5	3,5	3,5	4,5
Geographical (3)	15,0	12,0	9,0	15,0	9,0	9,0
Other (3)	15,0	12,0	7,5	15,0	9,0	10,5
Total	**62,3**	**61,7**	**48,2**	**65,9**	**40,7**	**52,2**

	Belgium	Germany	Greece	Netherlands	Poland	UK
Political/Regulatory (2)	7,0	9,0	7,0	8,3	5,0	7,8
Economic(2)	9,0	9,0	9,0	7,0	4,0	5,0
Environmental (1)	2,6	3,2	4,0	2,2	2,4	2,6
Sociocultural (3)	7,2	10,2	3,0	15,0	4,2	10,8
Legal (2)	9,3	8,0	7,3	9,3	5,3	8,7
Market (3)	7,5	11,3	4,5	10,5	10,5	13,5
Geographical (2)	10,0	8,0	6,0	10,0	6,0	6,0
Other (3)	15,0	12,0	7,5	15,0	9,0	10,5
Total	**67,6**	**70,7**	**48,3**	**77,3**	**46,4**	**64,8**

Appendix 6: Environmental permit procedure in Flanders

AANVRAAG VOOR EEN MILIEUVERGUNNING KLASSE 1. PROCEDURESCHEMA.



'Handleiding Milieuvergunnings-aanvraag', Vlaams Agentschap Ondernemen juli 2006

De ganse procedure neemt 339 dagen in beslag, te tellen vanaf (*)
(399 dagen na 1 verlenging)
(429 dagen na 2 verlengingen)

Appendix 7: Overview installations under development in Flanders

Company	Location	Licensed
1. Agrikracht	Rumbeke	Mest: 10.000 ton Energiegewassen: 6.500 ton OBA: 10.500 ton
2. Agri-Power	Malle	Mest: 9.900 ton Energiegewassen: 8.100 ton OBA: 12.000 ton
3. Bio7	Rijkevorsel	Mest en energiegewassen 14.400 ton OBA: 9.600 ton
4. Bio Energie Agriferm	Boutersem	Landbouwgerelateerde stromen: 15.000 ton OBA: 10.000 ton
5. Bio Energy	Lommel	Landbouwgerelateerde stromen 15.000 ton OBA: 10.000 ton
6. Bio-Electric	Beernem	Landbouwgerelateerde stromen: 36.000 ton OBA: 24.000 ton
7. Biofer	Zoutleeuw	Mest: 30.000 ton OBA: 30.000 ton
8. Bio-Gas Boeye	Haasdonk	Landbouwgerelateerde stromen: 36.000 ton OBA: 24.000 ton
9. Biomass Center	Ieper	OBA: 25.000 ton Landbouwgerelateerde stromen: 12.000 ton OBA: 8.000 ton
10. Goemaere Eneco Energie	Diksmuide	Landbouwgerelateerde stromen: 12.000 ton OBA: 8.000 ton
11. Greenergy	Herselt	Landbouwgerelateerde stromen: 21.000 ton OBA: 14.000 ton GFT + OBA: 65.000 ton GFT+ OBA: 50.000 ton
12. IGEAN	Brecht	Mest: 25.000 ton
13. IVVO	Ieper	OBA: 25.000 ton
14. IVEB	Brecht	Landbouwgerelateerde stromen: 36.000 ton OBA: 24.000 ton
15. Mandel-Eneco Energie	Roeselare	OBA: 1000.000 ton Mest: 800 ton OBA: 500 ton
16. Op de Beeck	Kallo Rumbeke	Landbouwgerelateerde stromen: 21.000 ton OBA: 14.000 ton
17. PIVAL	Merksplas	Landbouwgerelateerde stromen: 20.000 ton OBA: 6.000 ton
18. Quirijnen Energy Farming	Leisele	Mest: 14.400 ton OBA: 9.600 ton
19. Samagro		

20. Senergho	Gits	Mest: 3.750 ton OBA: 11.250 ton
21. Slachthuis de Reese	Zedelgem	Landbouwgerelateerde stromen: 13.800 ton
22. STORG	Houthalen-Helchteren	OBA: 9.200 ton OBA: 60.000 ton
23. Valmass (Thenergo)	Vleteren Zomergem	Landbouwgerelateerde stromen: 36.000 ton OBA: 24.000 ton
24. Vandaele Eric	Deinze	Landbouwgerelateerde stromen: 36.000 ton OBA: 24.000 ton
25. VC Energy	Vliermaal	Landbouwgerelateerde stromen: 10.200 ton OBA: 6.800 ton
26. Wauters Nico	Meer	OBA: 7200 ton Mest: 4000 ton Energiegewassen 8000 ton
27. Antonissen Ann	Westerlo	OBA: 30000 ton, Mest 15.000 ton, Energiegewassen 15.000 ton
28. Batraco	Meerhout	OBA: 5.6000 ton, Mest: 4.680 ton, Energiegewassen 3.780 ton OBA: 5.600 ton, Mest 4.620 ton, Energiegewassen 3.780 ton
29. Bonen Roger	Nijlen	OBA 6.000 ton, Mest: 20.000 ton, Energiegewassen 9.000 ton OBA: 60.000 ton, Mest: 90.000 ton
30. De Bruyn Kris	Minderhout	OBA: 7.200 ton, Mest 7.200 ton, Energiegewas 3.600 ton
31. Gallina	Meerle	OBA: 12.000 ton, Mest 9.000 ton, energiegewas 6.000 ton.
32. Milieu verzorging Kempen	Arendonk	OBA: 8.000 ton, Mest 6.000 ton, energiegewas 6.000 ton
33. Spoormans Danny	Halen	OBA: 24.000 ton, Mest: 18.000 ton, energiegewas 18.000 ton
34. Halvark	Herk de Stad	OBA: 4.000 ton, Mest: 3.000 ton, energiegewas 3.000 ton
35. Lavrijsen Antoon	Stekene	OBA: 3.200 ton, Mest: 4.000 ton, energiegewas 800 ton
36. Bio Energie Kemzeke	Kruishoutem	OBA: 24.000 ton, Mest?, Energiegewas?
37. De Paepe Raphael	Zottegem	Groenafval: 1.700 ton, OBA: 230 ton, Mest: 5.420 ton, energiegewas 4.650 ton
38. Simoens Jan	Aalter	OBA: 10.800 ton, Mest; 8.100 ton, energiegewas 8.100 ton
39. Wittevrongel Peter	Ternat	OBA: 100.000 ton, Mest 80.000 ton
40. Bayens Rudy en Rene	Halle	OBA: 120.000 OBA: 24.000 ton, Energiegewas: 12.000 ton
41. Lievens Jos	Pittem	OBA: 50.000 OBA: 24.000 ton, Mest 31.000

42. Ampe Henri 43. Binergy Ieper 44. Dewicke Wim en Marcel 45. Electrawinds Biomassa 46. Goetry Noel 47. Green Power Pittem 48. Lafaut 49. Lampaert Veronique 50. Leie Energie 51. Sap Yves 52. Scherrens Joost 53. Volcke Livinus	Ieper Diksmuide Oostende Dentergem Pittem Pittem Beselare Wielsbeke Merkem Ruddervoorde Ichtegem	ton, Energiegewas 5.000 ton. OBA: 25.000 ton, Mest 25.000 ton, energiegewas 10000 ton OBA: 24.000 ton, Mest 36.000 ton OBA: 16.000 ton, Mest 16.000, Energiegewas: 8000 OBA: 180.000 ton, Mest 60.000 ton OBA: 24.000 ton, Mest 36.000 ton OBA: 24.000 ton, Mest 36.000 ton OBA: 24.000 ton, Mest: 18.000 tons, Energiegewas 18.000 ton

Appendix 8: Overview availability of biomass sources Flanders

Stroom + jaartal gegevens	Hoeveelheden beschikbaar voor recyclage (met uitzondering van vergisting) (ton/jaar)	Hoeveelheden beschikbaar voor vergisting (ton/jaar)	Hoeveelheden beschikbaar voor verbranding (ton/jaar)	Totaal (per jaar)
Groenafval particulieren, tuinders, bedrijfsterreinen…(HH+BA)	514.500	nvt	/	514.500 Ton
GFT-afval (HH)	275.000	82.500	/	357.500 Ton
Organisch-biologisch bedrijfsafval			/	
structuurmateriaal			/	
Gebruikte frituurvetten en –oliën (HH)	4.915	nvt	/ uitz. Electrawinds	4.915 Ton
Gebruikte frituurvetten en –oliën (horeca)	8.100 (+ 24.838 export[2])	nvt	/ uitz. Electrawinds	8.100 + 24.838 ([2]) Ton
Organisch-biologische fractie van restafval (HH) + (BA)	353.515	0	353.515(HH) + X (BA)	353.515 Ton (HH) + X (BA)
Houtafval (inclusief houtstof en houtkrullen)	920.000 (+68.000 export R3)	nvt	580.000 (+93.000 export R1)	1.661.000 Ton
Dierlijk vet cat 1 en 2			22.000 ([3])	22.000 ([3])
Dierlijk vet cat 3	83.500 ([3])		nvt	83.500 ([3])
Diermeel cat 1 en 2		nvt	72.000 ([3])	72.000 ([3])
Diermeel cat 3	94.000 ([3])			94.000 ([3])
Slib (RWZI)	11.209		90.691	101.900 Ton ds
Slib (voedingsindustrie)	27.900 ([4])	?	2.100 ([4])	30.000 ([4])
Ontinktingsslib			95.500	95.500
Slib textielindustrie			4.371 ([3])	4.371 ([3])
Plantenschroot	1.100	0	3.116	4.216 Ton
Vlasafval	31.567			
Agentschap Infrastructuur: -maaisel -houtafval	 31.817 5.258			 31.817 Ton 5.258 Ton
Natuurpunt: -maaisel	 31.931			 31.931 Ton ds

Tabel 67 Overzicht van de verschillende biomassa(afval)stromen in Vlaanderen met hun hoeveelheden beschikbaar voor recyclage en energetische valorisatie (cijfers2006 – 2007),

([2]) exportcijfer van 2006 - ([3]) ingeschatte cijfers van 2004 - ([4]) ingeschatte cijfers van 2005 – X = geen cijfers beschikbaar