University of Twente

Faculty of Business, Public Administration and Technology

Department of International Management

The only green thing we have is the dollar

An export promotion proposal to the Consulate General of the Netherlands in Chicago aimed at Dutch SMEs in the sustainable energy technology sector

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January 2007

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M.Sc. Thesis

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January 2007

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I hope that this report forms the basis for future export support activities aimed at Dutch SMEs with respect to exporting to the USA.

Enschede, December 2006.

Charlene Chedi

Executive summary

The Consulate General (CG) of the Netherlands in Chicago looks after the Dutch community in the United States. In relation to the American authorities and as far as the local legislation allows, the CG conducts the Dutch interests according to the Dutch laws and regulations. It is concerned with the interests of Dutch companies, in the Netherlands or the USA, as well as Dutch people living or traveling through the USA.
The CG has several tasks to contribute to this: (1) traditional consular tasks, (2) the promotion of cultural relations between the Netherlands and the United States, and (3) the promotion of Dutch economic and commercial interests.
There is a growing demand for technology for sustainable energy in the US, due to the rise of global energy issues. The current situation in the USA asks for expertise in this area. Dutch companies have built up considerable expertise in the field of technology for sustainable energy. However, there is a lack of collective promotion of the strong Dutch expertise in this sector in the US.

Export promotion in this research is defined as policy measures, which actually or potentially enhance export activity at the macro or meso level.
In order to improve the export promotion programs for Dutch companies in this sector, the purpose of this project was to give an answer to the following question:

What are the relevant export support needs of Dutch small and medium-sized companies in technology for sustainable energy and what type of support should the Consulate General in Chicago provide them with regard to exporting to the USA?

To find an answer to this question this research consist of: a) a literature and data review on the Dutch and American market, b) the development and implementation of a tool suitable to assess the export potential and support needs of Dutch companies, c) proposals on support interventions.
The analysis of the technology for sustainable energy sector in the Netherlands showed good prospects for further foreign expansion. This resulted in a selection of promising segments, based on their innovative and technological capacity as well as market share. These indicators corresponded with the criteria that the CG perceived as most important: innovation and domestic market position.
The US sustainable energy market demand was assessed based on market scale, development, and investment. After matching the Dutch sector with the US demand the segments technology for wind energy, solar energy, biomass, energy efficiency, and clean technology were selected.

The support needs and constraints of Dutch exporters and non-exporters in the selected segments were analyzed by using the export assessment (ESA) tool. The ESA tool tries to detect the company support needs directly as well as indirectly. The model of export performance of Katsikeas et al is used to detect barriers perceived by Dutch companies that are exporting or not exporting. One determinant of export performance is the perception of obstacles and opportunities. Questions based on the environmental framework of Wood and Robertson identified the main constraints in the legal, economical, political, and social dimensions of the companies.
Recognizing the right stage of export development provides great opportunities to select and create suitable instruments to meet the company needs. Therefore, we used the theories of Seringhaus and Rosson on the internationalization process and export barriers.

In order to identify the company support needs in a direct manner, we used the list of Mekkelholt and Orelio. The companies indicated which support activities they considered significant.
The objective of this research is to answer how the CG can support the Dutch companies in the sustainable energy technology sector with regard to export to the USA. In order to propose export assistance programs in a better and effective way, the company support needs were identified by means of a questionnaire and by reviewing literature studies.
This research showed that the main constraints in exporting to the USA perceived by the Dutch companies in the selected segments are:

1. **The European market opportunities; Europe has fast growing markets and good subsidies. The geographic, administrative and cultural distances are smaller than the United States;**
2. **Legal framework of the USA;**
3. **No information on US market potential; Dutch companies have little awareness of the market demand in the USA;**
4. **Lack of capacity (financial, internal, marketing);**
5. **No information on the foreign competitors.**

More than 50% of the respondents indicated legal and political factors as the biggest obstacle:

- **Product standards imposed by the USA;**
- **Tariffs, import duties, and taxes on products in the USA;**
- **Political strength and leadership.**

Cultural and economical factors acted more as a stimulus for companies to export to the USA.

Dutch companies expressed different support needs when exporting to the USA. These export needs are differentiated by the level of exporting a company has reached. Every type of exporter has a different set of needs. The following support needs are pointed out by all Dutch companies:

1. **information about legal formalities;**
2. **market information/ research;**
3. **assistance with the selection of distributors/ partners;**
4. **delivery/ payment terms;**
5. **and information of export documents.**

By comparing the export promotion theories of Seringhaus with the identified company support needs and the available assistance programs of the CG, several intervention priority areas for the CG were specified, as shown in the following table:

Type of export involvement	*Non-exporter*	*New exporter*	*Expanding exporter*	*Continuing exporter*	*All companies*
Export promotion focus and typical initiatives	Advertising Local seminars Export bulleting/ newsletter Export success stories	Seminars Export bulletin/ newsletter			Motivational
		Market reviews Supplier/ Buyer newsletter Custom market research	Market visits Export seminars/ meetings Export newsletter	Export seminars/ meetings Export newsletter	Informational
		Trade missions Financing, insurance	Trade fairs Trade missions Financing, insurance	Trade fairs Foreign buyer visits Sales offices Financing, insurance	Operational/ Resource

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Acronyms

CBS	Statistics Netherlands
CG	Consulate General
DOE	Department of Energy
EBI	European Bioinformatics Institute
ECN	Energy research Centre of the Netherlands
EIA	Energy Information Administration
EIM	Institute for Business and Policy research
EVD	Agency for International Business and Cooperation
OECD	Organization for Economic Cooperation and Development
RPG	Renewable Portfolio Goals
RPS	Renewable Portfolio Standards
SME	Small and medium enterprises
SWOT	Analysis on strengths, weaknesses, opportunities, and threats
US	United States
USDA	United States Department of Agriculture

1. Research design

1.1 Introduction

Americans have to make significant cuts in their energy consumption by as much as 30% (New York Times, 2002), because the US is by far the largest energy consumer in the world. In order to achieve this, they need to rely on something else than fossil fuels. As a relatively small country, the Netherlands has a head start on the USA with respect to expertise and technology in sustainable energy. This becomes more important due to several global issues:

Increasing oil prices

THE HAGUE, July 2006 – Oil Company Shell is augmenting its prices of gasoline and diesel by 2 eurocent. Fear over an escalating situation in the Middle East is the main reason for these high prices. These prices are approaching the records height, which occurred at the end of August last year following Katrina hurricane [1].

No infinite supply

The oil story is becoming a more important topic. The world is consuming petroleum faster than new fields are being discovered. Production is declining in most of the countries outside the OPEC cartel. US Energy Secretary (2006): "There may be a limit to supply… - There is a perception of concern about what's going to happen in the future."

Unreliable and insecure sources

"The Iraqi oil is classified as a 'non-secure' source, yet the US is the largest consumer of Iraqi oil" (Williams and Alhajii, 2003). US dependence on petroleum imports has grown steadily for over a decade and has been at record levels for several years. President Bush's efforts are to stimulate the economy through tax cuts and other fiscal measures. An energy crisis could cause a recession, inflation, and higher unemployment [2].

Global warming

For more than a century, people have relied on fossil fuels such as oil, coal and gas for their energy needs. Burning these fossil fuels releases the global warming gas carbon dioxide into the atmosphere [3]. Greenhouse gases, such as carbon dioxide, allow sunlight to enter the atmosphere freely [4]. This influences global warming.

Need for alternative technology

Oil is a unique energy source that has no complete replacement in all its varied end uses. However, it is not only a finite source; oil comes with strong inconvenient impacts. Thus, we need to find alternative resources. That brings us to the following statement: green house gas emissions need to be kept constant. In order to improve energy efficiency, we need to shift to green technology.

1.2 Background

The economic department of the Consulate General (CG) of the Netherlands in Chicago, USA functions as the principal of this graduation assignment. Employees of the Consulate look after the Dutch interests. The CG in Chicago is concerned with several tasks [5]:

- **the advancement of Dutch economic and commercial interests;**
- **the promotion of cultural relations between the Netherlands and the United States;**
- **traditional consular tasks (e.g. the protection of the interests of Dutch nationals in the USA, visa/ travel documents).**

This report focuses on the first task.

Because of the enormous size of the United States, four Consulate Generals are brought into action to support and represent the interests of the Netherlands in different key geographical areas: New York, Miami, Chicago, and Los Angeles. The Embassy of the Netherlands is located in Washington D.C. where it also functions as a Consulate General. The CG in Chicago covers the states in the Midwest of the USA: North and South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, Kentucky, Tennessee, and Ohio.

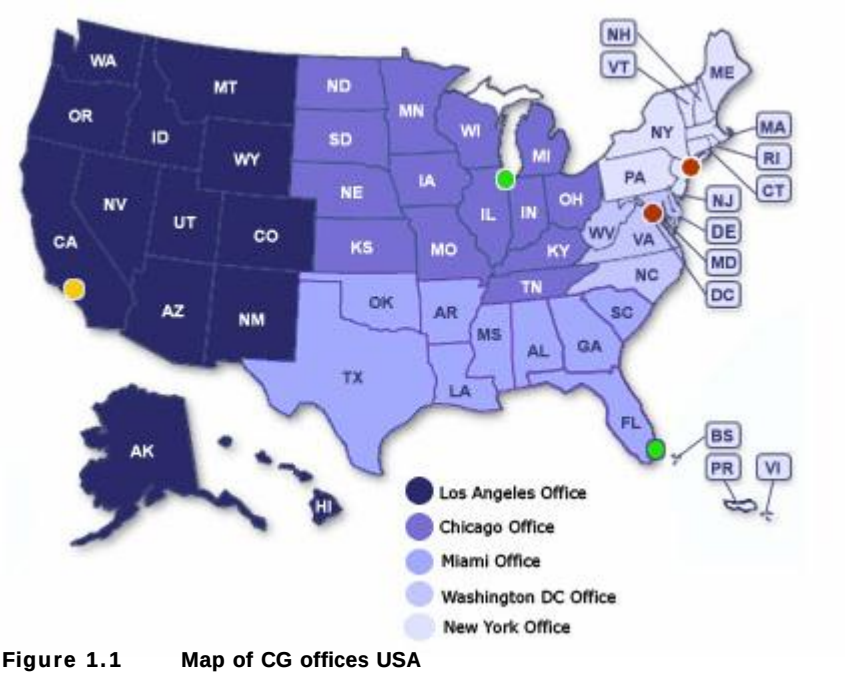


Figure 1.1 Map of CG offices USA

One of the primary tasks of the Consulate is the protection of Dutch *economic interests* in order to maintain and stimulate a strong competitive edge in regards to Dutch businesses. The CG focuses on how to improve the Dutch competitiveness and trade promotion in a certain country. This involves aspects like the investment climate, the trade policy, the economic policy and the developments in Dutch export market potential. The Consulate General is also concerned with *export promotion*, which includes facilitating export and business development for companies from the Netherlands. To do this effectively, the focus is directed on promising technology areas. One of these focus areas is sustainable energy. There is a growing demand in the US for technology for sustainable energy (highest percentage of growth in the US is in the environmental technology market; EIM, 2005). At the same time, there is a lack of collective promotion of the strong Dutch expertise within this US sector.

To practice effective export promotion, it is important to understand the main support needs Dutch companies experience when exporting to the USA, as well as the opportunities and demand which exist in the foreign market. The environmental factors also need to be considered. Dissimilarities in the economic environment, including infrastructure and level of technology, and in the political, legal and cultural environment, pose inducements for and obstacles to successful expansion (Ghauri and Holstius, 1996).

The Netherlands has built up considerable expertise in the field of technology for sustainable energy. However, the Dutch strengths have not been brought to the attention of the potential US clients in a structural way. According to Ecofys (2003) Dutch companies are

facing difficulties when entering the US market, as the political and cultural environment is different from their own experiences [6].
To take advantage of the US market potential in sustainable energy, there is a need for business relationships between Dutch and American companies. Previous studies show that the US has expressed an interest in learning from the Dutch pioneering experiences [7]. Partnering Dutch and American parties provide better opportunities for both to strike the potentially large sustainable energy market in the US.
This perspective is presented in a project called 'Sustainable Energy Partnering US-NL', which was initiated by the Consulate General of the Netherlands in New York. The main objectives of this project are:
- To mutually inspire the sustainable energy sector in the Netherlands and in the US.
- To provide a platform for communication of the Dutch sector to the US market.
- To take better advantage of the opportunities the US market provides for sustainable energy technology, products and services provided by Dutch companies.

This is in line with the objective of the Consulate General in Chicago: to provide more opportunities for business development on technology for sustainable energy companies from the Netherlands.

1.3 Problem formulation

In the context of export development activities, the CG of New York has already launched a project to stimulate Dutch companies to enter the US sustainable energy market. There is a need to clarify the support needs of Dutch companies. In doing so, companies that have the capacity to internationalize to the USA, can be supported and stimulated by the CG. Such companies could satisfy demanding American buyers and handle export procedures successfully. This sub section will describe the related problem statement and research questions.

1.3.1 Research objectives

The general objective in this research is to explore the support needs that are important for Dutch small and medium-sized enterprises in exporting to the Midwest of The United States. The specific objectives for this research are:

1. **Evaluation of relevant Dutch sub sectors in reference to exporting to the USA in the sustainable energy technology sector.**
   - **Description of the competences and development in Dutch technology for sustainable energy.**
   - **Description of the general demand on the US sustainable energy technology market.**
   - **Identification of the promising segments according to relevant literature and the criteria of the CG.**
2. **Identification of relevant support needs among Dutch small and medium enterprises in exporting to the Midwest of the States in the sustainable energy technology sector.**
3. **Elaboration on export promotion assistance in respect to obtained support needs.**

1.3.2 Problem statement

Policymakers and local governments in the US are recognizing the importance of technology for sustainable energy. Due to world issues like global warming, the limited fossil fuel supply, reduction of pollution emissions, attention for technology for alternative energy sources is increasing. The technology for sustainable energy needs to meet the demand of the US market. The Netherlands has branches in the environmental sector with good core

competences. However, as was stated earlier, there is a lack of good export promotion programs to bring the two together.

Export promotion is defined as policy measures, which actually or potentially enhance export activity at the company, industry or national level (Root, 1971). The role of export promotion is the creation of awareness of exporting as a growth and market expansion option; the reduction or removal of barriers to exporting; and the creation of promotion incentives and various forms of assistance to potential and actual exporters.

The management of the Consulate General wishes to increase export activities of Dutch companies, involved in technology for sustainable energy, to the USA. The purpose of this project is to determine what activities can help the CG to encourage Dutch companies to export their products or services to the USA. In order to detect relevant segments, we need to match the Dutch core competences with the general US demand. These segments contain companies with promising export opportunities.
Literature studies show that to develop successful export promotion assistance, it is important to recognize the company need for export support. Therefore, the research question is as follows:

What are the relevant export support needs of Dutch small and medium-sized companies in technology for sustainable energy and what type of support should the Consulate General in Chicago provide them with regard to exporting to the USA?

When the Consulate General is familiar with the support needs of the Dutch companies, a better understanding is acquired of its important customer groups, which enables the CG to support and stimulate this target group in a better way to create effective export promotion assistance.

1.3.3 Research questions

To address the central research question, we have formulated three sub questions:

1. **What are the relevant Dutch small and medium-sized segments in the sustainable energy technology sector for exporting to the USA?**
    a. **What are the competences of Dutch Small and Medium-sized companies in the sustainable energy technology sector?**
    b. **What is the general demand on the US sustainable energy technology market?**
    c. **Which segments can be identified based on confrontation of 1a and 1b?**
2. **What are the relevant support needs in the identified segments with respect to exporting to the USA?**
3. **Which export promotion assistance should the CG Office in Chicago provide and how can this be carried out?**

1.4 Research approach

This section describes which research methods, sources and analysis instruments are used in order to obtain the answers to the research questions provided in the previous section.

Verschuren and Doreward (1999) assert that there are two principle types of research objectives: theory oriented and practice oriented ones. Theory-oriented research is concerned with contribution to the development of theory about a given phenomenon, while practice-oriented research is concerned with finding a solution to a practical problem confronting an organization or society. This research combines both elements by contributing to the body of literature knowledge as well as raising issues of practical relevance.
The research method used in this investigation has an explanatory character as well as an exploratory one. The explanatory nature is perceived through the use of primary data.
Exploratory research is a type of research conducted because a problem has not been clearly defined. This fundamental research relies mostly on secondary data collection.

Secondary data is discovered through theory-oriented research: a literature study. The value of such data collection is relatively high due to different sources used and researches carried out. Primary data is used to indicate the different variables necessary to review and categorize the output of secondary instruments. These are mainly indicators concerning the analysis of the support needs of the Dutch small and medium Enterprises, the export development and the assistance of export promotion.

The collection of secondary data is necessary to provide initial indications concerning the market and the research to be executed. They help to focus on aspects that need to be investigated in further detail and provide an indication as to what further information is required. However, there are some disadvantages of secondary data in comparison to primary. This kind of data is typically collected on a regional and country basis, which therefore can result in macro-indicators. This implies that very often answers to concrete questions can only be given via an indirect path. Besides this, the available data can be issued in the sense of socially desirable responses, and it is not uncommon that the available data are outdated. This research also has a practice-oriented focus, which will be carried out according to a validated questionnaire.

We will start with the, mainly qualitative, collection of secondary data. This data is needed to obtain a clear overview of the current market competences and developments within the different branches in the sustainable energy sector in the Netherlands. The same approach will be held to find the opportunities on the US market. Relevant market segments will be identified when confronting both markets. This is done with the use of criteria of the Consulate General, which have been formulated based on its objectives of market potential in the USA.
Following up these steps, primary data research is used to steer and support the exploratory research of the Dutch SMEs. In the next phases of this investigation secondary data is not only buffered by primary research, but also by the design of questionnaire, interviews, and desk research. The structure of these activities will be clear in the next section in the outlined structure.

1.5 Research structure

This section presents a clear overview of the research. The different elements illustrated in figure 1.2 match with the different chapters in the table of contents. These elements are consistent with the questions raised in 1.3.

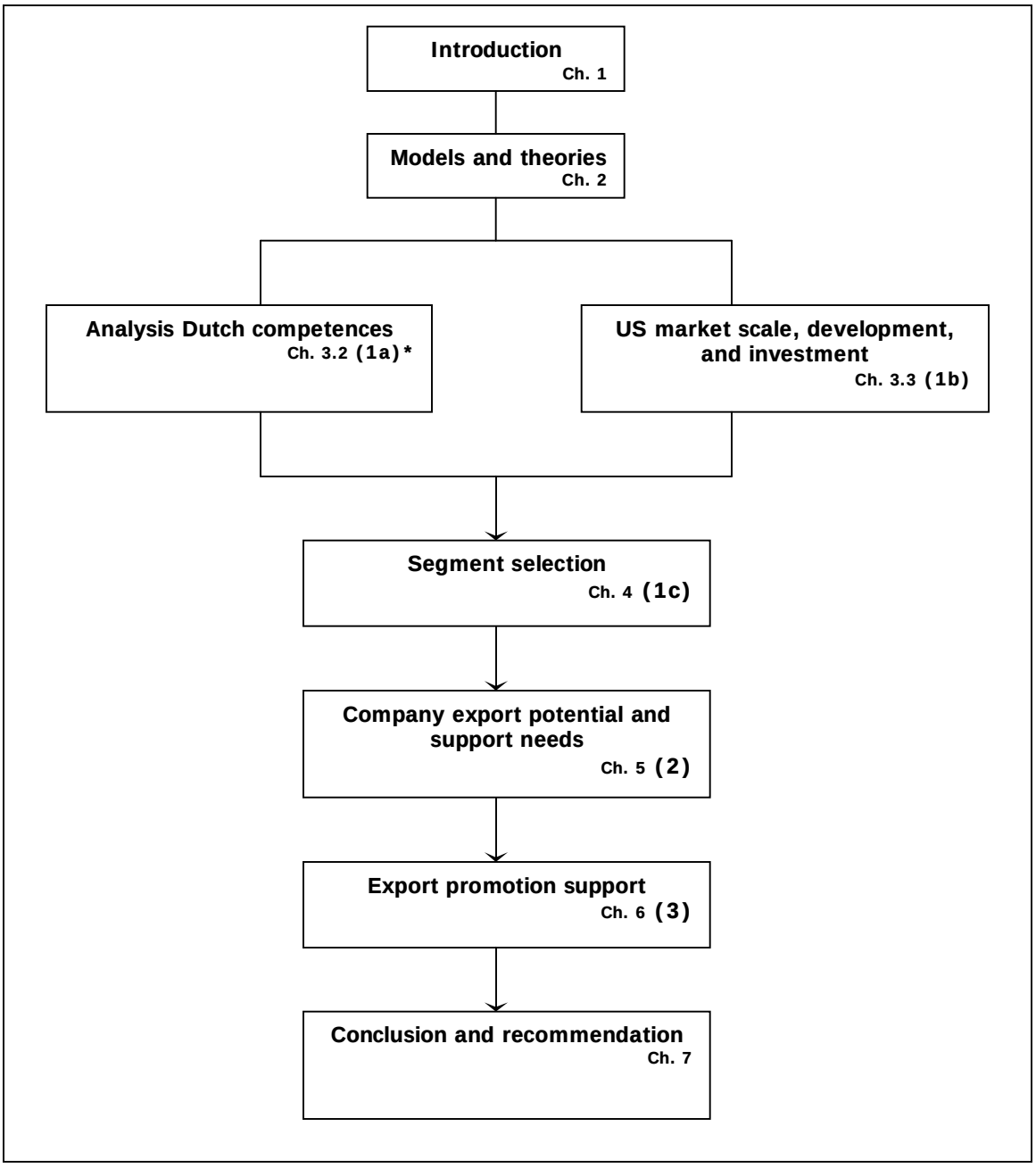


Figure 1.2 Research structure
(* refers to the research questions mentioned in 1.3.3)

2. Theoretical framework

This research deals with the support needs and export promotion of Dutch companies. It is important to detect and use appropriate theories to achieve the goals as outlined in the previous chapter. This chapter provides a theoretical approach, which will function as a scientific framework for the problem formulation.

To understand the company support needs, we have developed an export support assessment (ESA) tool as will be discussed in this chapter. This tool is supported by different theories and models. To apply this tool to the right target group, we need a selection of relevant segments in the Netherlands, and in the USA. Therefore, the first two sections discuss how to analyze the Dutch competences and the general demand in the USA in the technology for sustainable energy sector. Literature studies indicate the best approach and indicators. These analyses are needed to find the segments with the best competences and opportunities of the two countries. The focus for branches in the Netherlands is on the technological and innovative capacity of a branch and the market share of a particular branch. To find the opportunities on the US market we look at the market scale, development, and investments.
The criteria for the selection of segmentation are described in section 2.3. This is based on the model for market selection of Sarabia (1996). This model also includes the preferences of the Consulate General.
Section 2.4 explains the tool used to detect the company support needs. This tool is based on dimensions of the CG and different theories, which is presented in Annex B. Section 2.5 describes the export promotion theories used to analyze and evaluate the company support needs.

2.1 Analysis of the competences of the Dutch sector

The market of technology for sustainable energy in the Netherlands differs from the USA. It is therefore necessary to analyze this sector in the Netherlands in order to identify the competences for exportation.
According to Galan, Galende & Gonzalez-Benito (1999) the main factor determining the decision of the firm to sell its product in foreign markets is its technological and innovative capacity. Their findings are confirmed with the fact that (innovative) technology is one of the fundamental pillars of competitive advantage. This seems especially important in international markets, which require competitive capabilities from the firms trying to enter them. Success of past activity, such as turnover or market share, is a first assessment of market power, or market opportunity (Wood, 1999). Galan, Galende and Gonzalez agree with Wood. They discuss the importance given to the experience in the national market: a strong position in the national market precedes exportation.
Together, this provides us with an overview, as is shown in figure 2.1, of the determinants important to analyze the market competences of the Netherlands.

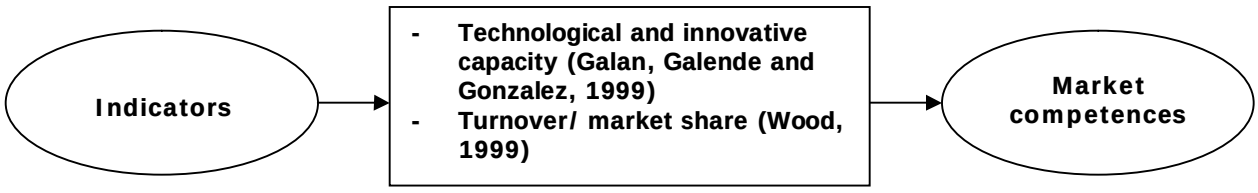


Figure 2.1 Indicators for market competences

Statistical studies and previous researches will reveal the results of the determinants and provide a general view of the different competences for Dutch companies.

2.2 Analysis American sector

After collecting the information on the Dutch market, it is important to screen the environment and the market in the USA. In the next section, we discuss the segment selection in which we explore the company support needs, by means of the Export Support Assessment tool. This segment selection is based on the analysis of Dutch competences and the US market demand for sustainable energy technology. This section discusses the US market.

Wood and Robertson (2000) state that no matter what type of export transaction method is used, information concerning market potential is ranked first, followed by information concerning the legal environment and politics (second and third respectively). More specifically, information concerning the export market's demand is considered paramount in their study. Companies ask themselves questions, which would either support or not support the consideration of an export market, such as 'Is there a demand for my product or service in the market or markets that I am considering?'

Therefore, we use this indicator to detect the opportunities for (exporting) companies on the US sustainable energy technology market. If the answer to this reflects positively on a certain export market, other questions become important such as legal, political, economical and cultural ones. These environmental factors will be used to detect the support needs of Dutch companies when exporting to the US market. Figure 2.2 shows an overview of the indicators used in this research to analyze the US market for sustainable energy technology. Section 2.2.1 discusses the US market demand, followed by the environmental factors in 2.2.2.

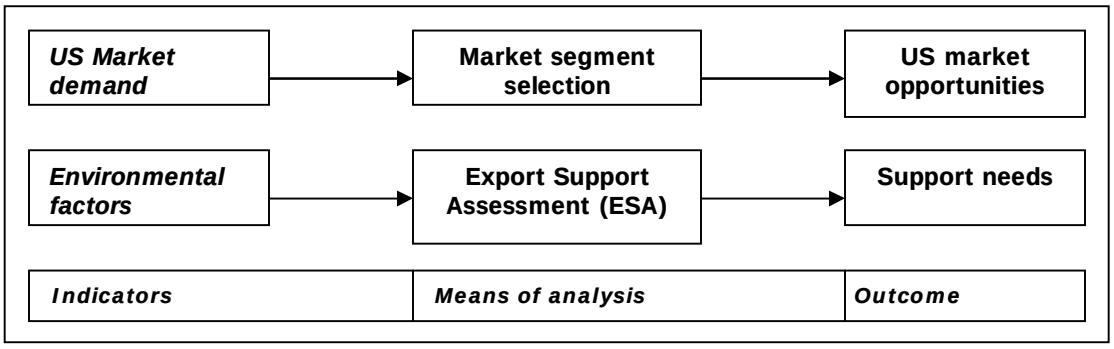


Figure 2.2 Analysis of US market characteristics (prepared by the author)

2.2.1 General market demand

In order to select the relevant segments in the technology for sustainable energy sector, we need to consider not only the Dutch competences, but also the foreign market opportunities.

Wood & Robertson (2000) assert that the general demand is part of the market potential for a foreign country. They indicate four export dimensions to analyze the general demand. This is illustrated in table 2.1.

Table 2.1 Dimensions general demand

Market potential	
General Demand	1. Potential foreign buyer's ability to pay for the product 2. Average annual sales of the type of product or service in the foreign country *(market scale)* 3. Future trends and growth rate of the foreign market in which product or service would be sold *(market development)* 4. Opportunities to offset cyclical swings in the US market demand for your product by entering this market *(market investment)*

(Wood and Robertson, 2000)

The market of technology for sustainable energy is relatively new in the Midwest of the United States. This makes it difficult to compare with similar products or services.
Research done by the Consulate General in New York shows information on market scale, development, and investments. After the analysis of the US market, the focus is set on the environmental factors.

2.2.2 Environmental factors

The environmental analysis provides information about the rules and regulations a company is concerned with when doing business overseas.
Wood and Robertson (2000) point out the importance of the foreign environment when analyzing export opportunities. They state that 'the rapidly shifting alternatives in terms of risk, stability and potential, need to be considered when doing business overseas.' They come up with different examples such as the importance of information concerning the legal structure in a different market and its relation to the type of international transaction being considered. Romanelli and Tushman (1988) agree and pose that 'the performance of a firm is highly related to the evolutionary and dynamic nature of fit between the environment and the organization'. Child (1972) debates whether decision makers in an organization can significantly influence this fit by taking strategic decisions and actions.
Romanelli and Tushman (1988) claim that where environments are changing and/ or performance outcomes are low or declining, a leadership's primary task is to intervene in ongoing patterns of commitment and exchange to redirect the character of an organization's relationship with its environment. To include the environmental characteristics in the questionnaire, we used the information framework of the export environment of Wood and Robertson.

Wood and Robertson (2000) discuss different environmental dimensions in their study of evaluating international markets. They developed a framework to capture the most important aspects of the political, economical, market, culture, infrastructure and legal environments faced by exporters.
Ghauri and Holstius (1996) describe four forces as the most inductive dimensions to successful expansion. These four environmental factors are used in this research to find the support companies need and the barriers they stumble upon. These factors are:

- Economical- the focus is on an export market's industrial, consumer, and service evolution and development;
- Political- the extent to which politics that govern the export market generate conditions conducive to international business activities;
- Legal- the legal environment of an export market and the degree to which it prevents or restrains business activities;

- **Cultural- the nature of internal and external shared lifestyles, customs, and social relationships.**

Wood and Robertson specify these primary dimensions into more subsidiary dimensions, as indicated in table 2.2.

Table 2.2 Environmental factors and its export dimensions

Primary environmental factors	Subsidiary export dimensions
Politics	Stability
	Diplomatic relations
	Internal policies
Economics	Development and performance
	Production strength
	Consumption
Culture	Cultural unity
	Cultural differences
Legal	Tariffs/ taxes
	Non-tariff
	Other legal

(Wood and Robertson, 2000)

We include these factors in the questionnaire to find out which primary dimension of the environmental factors is holding companies back, or stimulating them to export to the United States. See for more information about these export dimensions Annex B.

2.3 Criteria segment selection

Market segmentation consists of detecting, evaluating and selecting homogenous groups of individuals with the purpose of designing and directing competitive strategies towards them (Sarabia, 1996). Literature studies show a general trend to give more importance to the generation and description of segments than to the study of their possible application in organizations or companies (Assael and Roscoe, 1976; Wind, 1978). Sarabia (1996) suggests a model for segmentation research, which has advantages over other models because it includes management criteria. An example of this model is illustrated in figure 2.3. The segments used in this research are selected according to the objectives of the CG in Chicago and in New York.

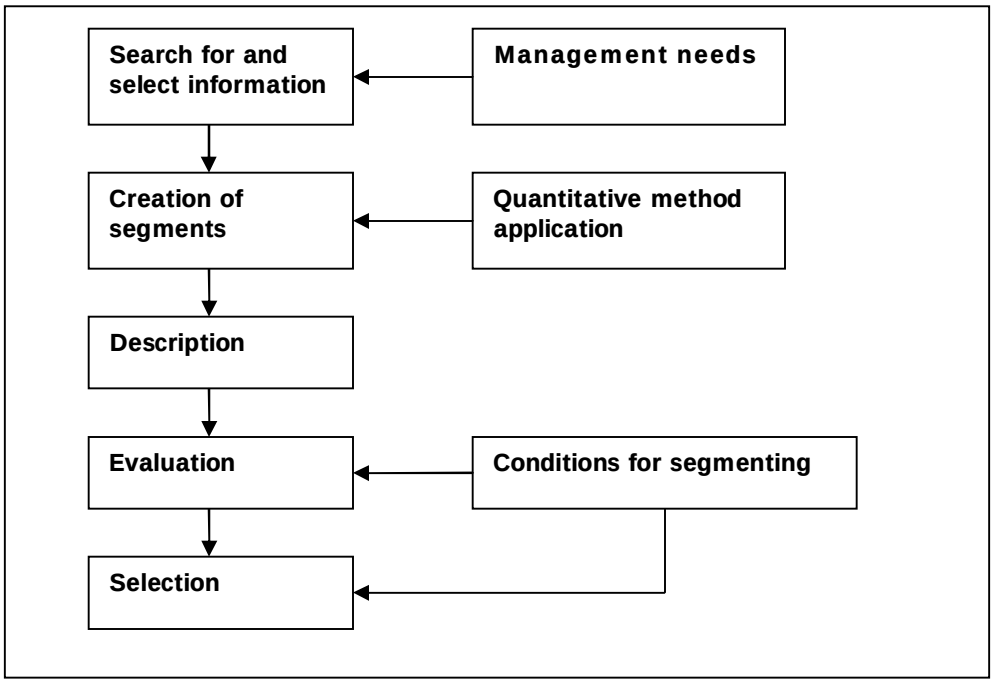


Figure 2.3 Model to create target segments (Sarabia, 1996)

This segmentation analysis starts with the search for general information on the sustainable technology market, as is described in section 2.1 and 2.2. This information is based on market environmental studies of several research institutes.

Multiple interviews with the consul general deputy in Chicago and the economic officer of environmental issues at the Consulate in New York have led to a list of different points of criteria: innovation, domestic market position, product capacity, export experience, firm size, and international orientation. The criteria considered as most important is used to select the sectors with the strongest Dutch competences: innovation and domestic market production. This will be further explained in chapter four.
The other criteria dimensions, mentioned by the CG, are more firm specific and are included in the export support assessment tool to analyze the company support needs.

Figure 2.4 illustrates the indicators used in this research for the selection of the relevant sub sectors.

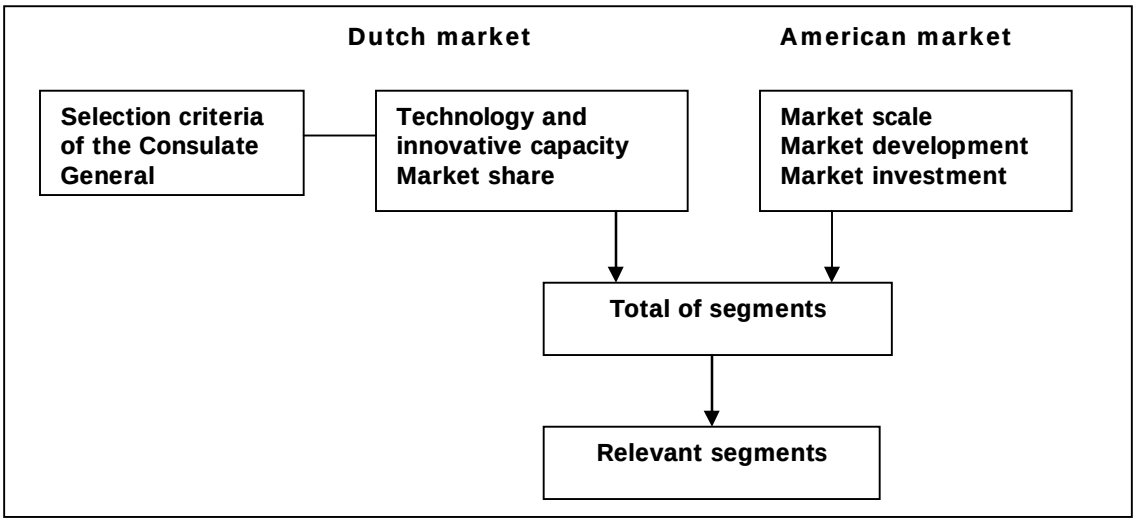


Figure 2.4 Indicators of segment selection of the Dutch and US market (prepared by the author)

Information for the segments is collected by means of quantitative data acquired through different sector studies done by the Agency for International Business and Cooperation (EVD), the agency of Statistics Netherlands, and the US Department of Energy.

2.4 Support need analysis

In the previous section, we have discussed how we selected the relevant segments in both the Dutch market as well as the American market. The relevant segments present the target companies. This section discusses how we analyze the support needs of the companies. This will be done according to the export support assessment tool. We have developed a tool suitable for assessing the export potential and support needs of Dutch companies in the segments selected by criteria of the Consulate General of Chicago and New York and literature studies.

Export Assessment Tool

To gain insight into a more in depth perspective in exporting to the USA, we need to detect whether an organization has the financial, human or productive capacity to supply a market in the US. When successfully entering an international market, many different questions need to be considered, such as:

- **Do you have enough resources to introduce your company on the US market?**
- **The economic market in America has a highly competitive character. What is the level of competitiveness of your product or service?**
- **Are you willing to adapt your product or service to the US market?**
- **What is your perception about the constraints your company experiences which hold you back to enter the US market?**
- **What support activity is necessary to enter the US market? Is your staff and strategy informed and adapted to cultural awareness?**

This information is valuable to consider when exporting to the USA (Team Canada Inc, 2005). Therefore, we include these questions in the ESA tool.
Information on support needs of the companies can be collected either directly or indirectly. Both ways are illustrated in table 2.3.

The Consulate General is concerned with the export behavior of Dutch companies towards the USA. Katsikeas et al (1996) issue this activity and propose a model of export performance. They mention in their research study key issues when developing this model. They state that different exporter categories vary in their characteristics and behavior; an exporter group represents a distinct stage in the process of export development. Seringhaus and Rosson (1990) confirm this statement with their model of export development and theories about export barriers. Both these authors tackle the need of company support indirectly. Hence, we have included the model of Mekkelholt and Orelio (2003) to confront a company directly with their support needs. We discuss these models in the next section.

Table 2.3 Main determinants in ESA tool

			Total support needs	
Literature focus		***Questions***	**Indirect**	**Direct**
Export performance	***objective firm characteristics***	**the number of employees export experience/ involvement**	**barriers in export behavior**	
	perceived obstacles and opportunities	**perception of environmental factors, perception of competitiveness**		
	export commitment	**export readiness, inquiry for export information, willingness to adapt**		
Exporting stage		**export status, reasons to export, interview**	**literature Seringhaus**	
Support needs			**open question on constraints, need for support assistance**	**need for support activity**

(prepared by the author)

A company's export behavior is determined by different factors such as the objective company characteristics, its perception of obstacles and opportunities in the foreign market, and its commitment to export. If a company, for example, perceives many obstacles instead of opportunities to a particular market, it is more likely not to show active export behavior. To look at the export behavior of a company provides information about the barriers they face. Considering these export barriers helps to understand the company export needs.

Identifying the stage of exporting a company has reached can help to understand the barriers they face, and with that, the support needs. These barriers influence the way a company looks towards exporting. A positive attitude means that the company is already exporting, or has no export activities and needs guidance. A negative attitude at management level can lead to no export activities. However, this does not exclude potential export opportunities. A company can possess the resources to export, but is not motivated or lacks certain structure or policies within the organization. Not only motivational barriers can be perceived; difficulties can also be obtained at informational or operational level. This information is crucial, because even if a company does not have the right resources, appropriate export promotion programs can support in export operations. Recognizing the right stage of export development provides great opportunities to select and create suitable instruments in order to meet the company needs. Through this way, the Consulate General can support and stimulate a company to reach the level of active involvement in export performance.
Two questions and an additional interview are applied to analyze the company's stage of exporting. The interview is included to confirm the results obtained from the questionnaire to develop the export stages. It is based on three factors asked to every company: the current export performance, the firm objectives, and the capacity to enter a new market or

manage sales and distribution operations. Chapter 6 describes the stages of exporting according to the identified company support needs in the different segments. The export promotion assistance is differentiated to the motivational, informational, and operational barriers, and described in section 6.4.

The support needs are acquired in a direct and indirect way. One question is included that asks the company directly about their support activity needs. For this question, data is used from the research of Mekkelholt and Orelio (2003).
Two other questions provide results in the perceived barriers and need for company support organization. Based on the promotion assistance theories, we can relate the suitable support activities to the acquired answers.

All these models and theories will be discussed in section 2.5. To validate this questionnaire we reviewed and consulted different literature studies. This evaluation is presented in Annex B.

2.5 Internationalization theories

The main objective of this report is to make proposals to the Consulate General on what export development and support activities it should offer to Dutch companies in the sustainable energy sector interested in exporting to the USA.
To reach this goal, we review in this section different export assistance and export behaviour theories on which the proposals later on in this report (chapter 7) will be based. Export assistance programs have the greatest impact when the assistance provided correspond with the needs of companies, which vary depending on the company's stage of export development.
The first section reviews the model of export behavior of Katsikeas et al (1996). This model shows different determinants of export performance. The dimensions of export behavior are used in the questionnaire as was illustrated in the previous section.
Seringhaus (1990) declares that to understand the export barriers companies' face, we need to consider the stage the company has reached in its export development. He distinguished three categories of export barriers: (1) motivational; (2) informational; and (3) operational/ resources-based. This will be discussed in section 2.5.2.
These barriers are related to a companies' stage of export development. Two approaches of export development process of companies will be described in section 2.5.3; the involvement and decision approach. Both models have their advantages and therefore we discuss both models, but for this research, we use the decision approach.
Section 2.5.4 describes the export promotion assistance to the different export barriers and support needs. Section 2.5.5 mentions the relevant support activities of Mekkelholt and Orelio (2003). The chapter ends with a section on implementation of internationalization theories.

2.5.1 Model of export performance

One possible way of increasing exports at national level is to stimulate exporting companies to export more (Katsikeas, Piercy and Ioannidis, 1996). This follows with important information to consider about the export behavior and performance of exporters. Even when companies are non- or new exporters, their perception on the determinants of export behavior provide valuable information. The determinants can influence export performance as they may hinder or stimulate the export behavior of companies.
Katsikeas et al (1996) mention two issues in their model of export behaviour: First, as different exporter categories vary in their characteristics and behavior, they have examined forms that are engaged in regular export activities. Second, they focus on manufacturing firms exporting through overseas distributors. A diagram of the model proposed in their study is shown in figure 2.6.

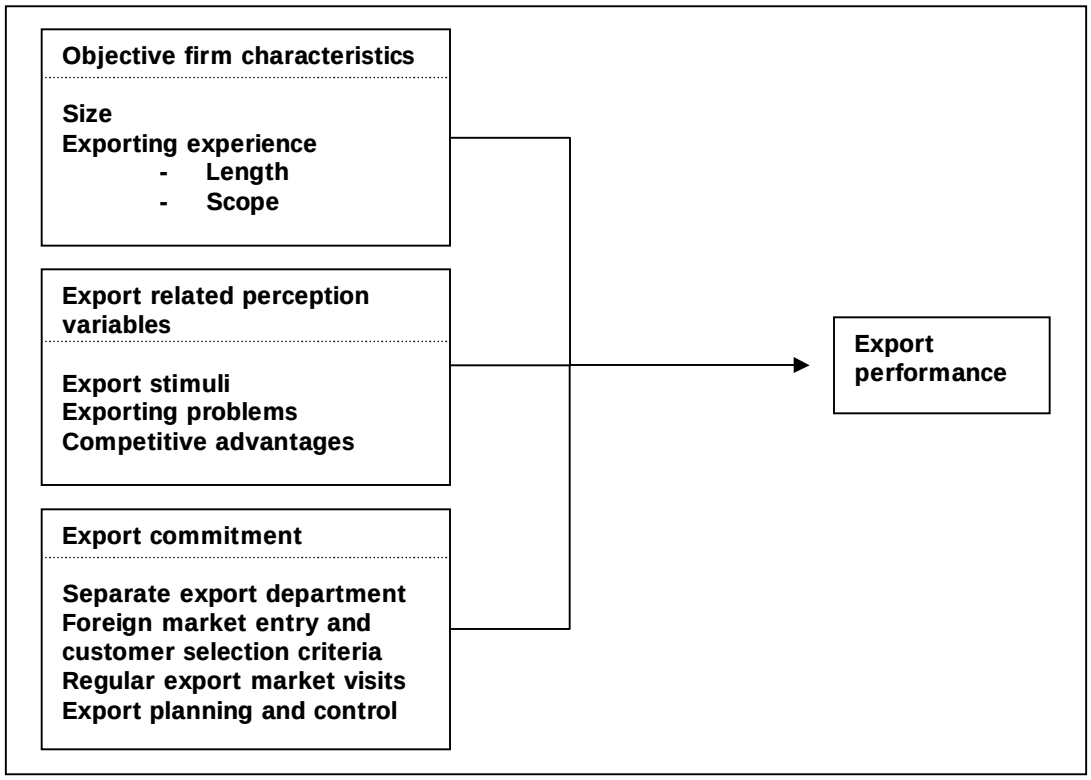


Figure 2.5 **Proposed model of export behaviour (Katsikeas et al, 1996)**

They suggest that three variables are of influence on the dependant variable export performance: objective firm characteristics, export related perception, and export commitment. Table 2.3 shows the different questions related to these determinants.
Export commitment is among others things, measured by export readiness. The United States Department of Agriculture (USDA) has developed a tool that rates a company on its export readiness based on different dimensions such as domestic market success, international orientation, production capacity, financial resources, export commitment, and adequate knowledge [8]. The dimensions of this tool will be included in the questionnaire to determine the export readiness of a company. The dimensions indicated by the CG are related to the export behaviour of a company (export experience, product capacity, firm size, and international orientation). Production capacity and international orientation are classified in the export readiness of a company (see annex B). The other dimensions are individually included in the ESA tool.

2.5.2 Export barriers

One way of understanding how organizations address company export needs is through considering the barriers faced in international trade. Seringhaus and Rosson (1990) view the crucial barriers to increase involvement by companies in foreign markets. Three main categories of export barriers exist:
(1) Motivational;
(2) Informational;
(3) Operational/ resource- based.

Companies currently not exporting are mostly held back by motivational barriers. Non-exporters view exporting as more time-consuming, costly, risky, and hence less profitable than doing business at home. However, this may also stand in the way of companies that

are currently involved in exporting, confirming the challenging nature of marketing overseas. Examples of motivational barriers include a buoyant large home market, the perceived higher cost and risk of doing business overseas; and the load of export documentation requirements. Thus, many firms need motivation before they are likely to start exporting. Advertising, testimonials and seminars are often employed to achieve this goal.

Lack of adequate information is another barrier to exporting. This occurs with both exporters as non-exporters. This can also prevent a company from foreign expansion. All companies require information to examine the viability of exporting. Analysis of market information is valuable for both exporters and non-exporters. This involves not only objective information requirements, but also various other services that assist in the planning and preparation of the export involvement process. The Consulate General can play a role in this situation. Providing economic data for a (specific) product as well as for the company, supporting in legal document requirements, and assisting in interpretation of data collection.
Export markets are often hard to penetrate, especially those that are some distance away and/ or even differ culturally. This means a sizeable investment of time and money to develop knowledge and experience of foreign market conditions. However, those are the resources in shortest supply, especially among smaller firms. As well, management in these companies are more skeptical about obtaining export market skills than those in larger organizations. The Consulate General can assist companies among other things through cost-shared market visits, promotion budgets, trade missions, etc.
Unless these barriers to exporting can be reduced, considerable potential for exports will be lost. The export promotion programs have to be designed in an attempt to deal with these problems. These categories are described in table 2.4.

Table 2.4 Co-ordination of government and company activity for exporting

	Time/ experience			
Export process in company	- conceptual:	attitudinal	structural	procedural
	- actual:	adoption process	implementation	export operations
Focus of government assistance		increasing export awareness	structural assistance	expanding foreign markets and sales

(Seringhaus, 1990)

2.5.3 The export development process

As explained above, to provide support assistance in export promotion we need to understand in which stage of exporting a company is. To effectively propose and implement export promotion assistance, it is necessary to recognize that companies are at different export stages and accordingly face different decision situations. Seringhaus and Rosson (1991) discuss two approaches to target export promotion assistance. From an *involvement* or *decision* standpoint, it is clear that at specific stages, different problems have to be addressed. These two approaches map out the linkage between export stage and company needs, showing that it is possible to define systematically groups of companies with particular export assistance needs.

1. Export stages- the involvement approach

This framework identifies different stages of the export development process, or the internationalization process of the firm. It starts with moving the focus from the domestic market through assessment of the feasibility of exporting to limited export involvement

(stage 1). It also recognizes that sometimes companies start exporting without any deliberate plan to do so (stage 2). Stages 4-6 elaborate the fact that many exporters extend their operations into new geographic markets as experience, knowledge, and skills develop. Depending on the policy of a particular company, movement from one stage to another is possible. Many companies will secure an increasing portion of their total sales from foreign markets over time. Such greater involvement is, however, not inevitable: 'numerous companies will choose to concentrate on the domestic market, either completely or to a major degree.'

Seringhaus (1990) concludes that effective export assistance can be provided by the differentiation of firms into the international stages and the specific needs of each stage. Table 2.5 presents the six internationalization stages identified in this approach, together with the emphasis for assistance programs.

Table 2.5 Export assistance from the export involvement approach

Internationalization stage			Appropriate emphasis for assistance programs
Stage 1	***The completely uninterested firm***	**Firm unwilling to export**	**Raise awareness level of exporting**
Stage 2	***The partially interested firm***	**Firms fills unsolicited orders but does not explore feasibility of exporting**	**Raise awareness levels of export benefits; assist with the information about mechanics of exporting**
Stage 3	***The exploring firm***	**Firm explores the feasibility of exporting**	**Make exploring more profitable; provide general and practical assistance**
Stage 4	***The experimental exporter***	**Firm exports experimentally to one or a few markets**	**Encourage the active exploration of exporting; provide general assistance and help with product adaptation**
Stage 5	***The experienced small exporter***	**Firm is an experienced exporter to those markets**	**Make exporting more profitable, provide general assistance, and help with financing**
Stage 6	***The experienced large exporter***	**Firm explores possibilities of exporting to additional markets**	**Facilitate customer service and provide general assistance**

(Seringhaus and Rosson, 1990)

2. Export stages- the decision process approach

Another stage wise approach to exporting considers the decisions that companies typically must make. This decision model is shown in figure 2.6.

Seringhaus and Rosson (1991) state that it should be noticed that a company does not have one export assistance need, but a set of needs that reflect the exporting context. Therefore, company export needs are best understood in relation to the stage of international development the organization has reached. He proposes five types of exporters for targeting export promotion assistance, which recognizes that firms are at different export stages and accordingly face different decision situations and support needs. These types are described below.

1) Non-exporter; firms with products and/ or services with potential to export that have never thought of, or have shown no desire to export

2) Failed exporter; Firms with previous export experience that have led them to withdraw from foreign market(s)

3) First time exporter; Firms that are aware of foreign market opportunities and sense that these might help them to meet their growth objectives

4) Expanding exporter; Firms that wish to move their products/ services into one or more new markets

5) Continuing exporter; Firms that are interested improving their export operations because of current and projected performance levels

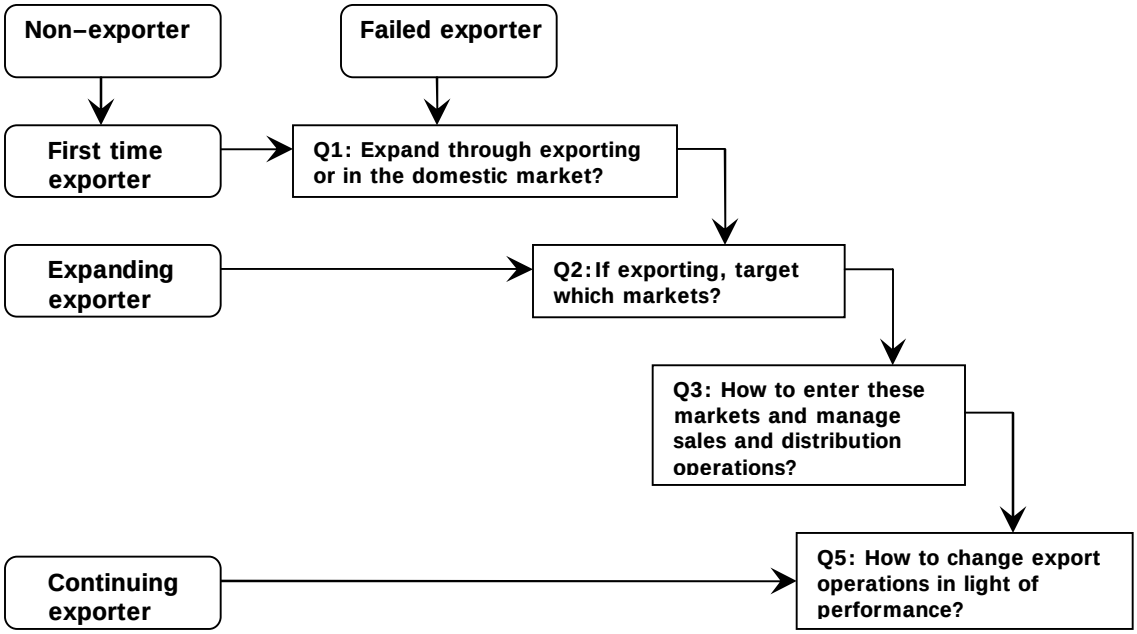


Figure 2.6 Five different stages of exporting (Seringhaus and Rosson, 1991)

We will use this approach in this research, because it is more specific in proposing initiatives for export support interventions.

2.5.4 Company support needs

The support needs will be acquired in a direct and indirect way. Mekkelholt and Orelio (2003) examined different support activities that are important to exporting. The objective of their research was to gain insight in the needs, problems and difficulties of exporters and non-exporters. This has followed in a list of support activities that were considered relevant by exporters and/ or non- exporters. This list is included in the questionnaire to confront companies directly with their need of support when (thinking about or already) exporting. This is further described in Annex B.

2.5.5 Export promotion assistance

Export promotion programs include a variety of initiatives to deal with the barriers mentioned in section 2.5.2. Some of these initiatives (advertising, local seminars) highlight the benefits of export involvement, thus providing a motivational boost to reluctant managers. Others (market reviews, overseas visits) help companies to assemble timely and inexpensive foreign market data, and in this manner deal with the informational barrier. The third operational/ resource-based barrier is also dealt with in various ways (bid preparation, trade fair participation). As well as these direct thrusts, promotion programs make an important indirect contribution. They attempt to create a pro-exporting attitude and to assist in making exporting a positive experience for the company. This, in turn, fosters a high level of export commitment – according to Serinhaus, a necessity for success.

Table 2.6 shows export promotion programs according to the three barriers mentioned earlier. It combines the stages of export development with the company needs.

Table 2.6 Company needs and export promotion programs

Type of export involvement	*Non-exporter*	*New exporter*	*Expanding exporter*	*Continuing exporter*
Key questions	Should we even consider exporting?	Should we initiate exporting? Which market should we investigate?	Which new market should we enter and how?	How can we achieve better performance?
Company need	To be made aware of opportunities	To determine feasibility of exporting	To select the most promising market and the best market entry method	To improve and fine tune existing operations
Motivational	Advertising Local seminars Export bulleting/ newsletter Export success stories	Seminars Export bulletin/ newsletter		
Informational		Market reviews Supplier/ Buyer newsletter Custom market research	Market visits Export seminars/ meetings Export newsletter	Export seminars/ meetings Export newsletter
Operational / Resource		Trade missions Financing, insurance	Trade fairs Trade missions Financing, insurance	Trade fairs Foreign buyer visits Sales offices Financing, insurance

(Seringhaus and Rosson, 1991)

2.6 Implementation of internationalization theories

In this chapter, relevant theories on internationalization are described. These theories are used to analyze the company support needs directly as well as indirectly. We used the model of Katskikeas, Piercy and Ionnidis to detect the barriers companies face in their export performance. Mekkelholt addresses these company needs directly. Theories of Seringhaus on the internationalization process are used to analyze the different constraints companies perceive and experience, and to indicate the exporting stage of a company.

Because as is mentioned earlier, a company does not have one export need, but a set of needs. This set of needs reflects the stage of international development the organization has reached.

The proposals to the Consulate General in chapter 7 will be based on the theories of export promotion of Seringhaus. Section 6.2.1 describes the support needs the twenty one companies have indicated as relevant. These company needs are differentiated to the export stages and the appropriate emphasis for assistance programs is suggested according to the decision approach discussed in section 2.5.3.

In this way, the CG could organize its export assistance in a better and more effective way aimed at companies that are systematically grouped while facing the same kinds of export barrier.

Furthermore, chapter six suggests a strategic market approach to implement the promotion support activities. The aim of this approach is to assist exporters to be more effective in entering the US market.

3. Technology for sustainable energy: Dutch competences and US demand

This chapter discusses the two markets for sustainable energy technology. The Dutch market will be analyzed on the indicators as explained in the previous chapter. The technological and innovative capacity as well as market share are used to find the best competences on the Dutch market. This corresponds with the two major criteria of the CG: innovation and domestic market production.
The market potential of the United States is based on the market scale, development and investments of technology for sustainable energy.
We start this chapter with a section on the definition and background of technology for sustainable energy. Following up, we discuss the competences of the sector on the Dutch market and in the third section the opportunities on the US market. Each section concludes with the relevant segments of each market.

3.1 Technology for sustainable energy

To analyze the sustainable energy technology sector, and its contribution, it is important to understand what sustainable energy is and the importance of this energy source. This analysis will give us a framework in which all global energy sources are described.

Definition sustainable energy

Sources of energy production are diminishing and during this production, pollutants are released. Therefore, many scientists have looked for alternative energy sources. Literature uses renewable and sustainable to define this kind of energy source. Wright (2005) defines the first as "flows of energy that are regenerative or virtually inexhaustible." The most common renewables include solar energy, wind energy, hydropower and biomass [9]. Energy that can be produced economically and safely for all time without affecting the environment and well-being of future generations is considered sustainable. Sustainable energy sources are often regarded as including all renewable sources, such as solar power, wind power, wave power, geothermal power, tidal power, and others [10].
Statistics Netherlands (CBS) employs the following definition for sustainable energy which is enacted in the Protocol of Sustainable energy (SenterNovem, 2004): Sustainable energy is energy in which renewable primary fuels are converted with the use of energy conversion technology into secondary or useful fuels. This technology for sustainable energy employs the following expertise:

- wind turbines
- hydro-electric power station
- photovoltaic solar systems
- thermal solar energy systems
- heat pumps
- storage of heat/ cold energy saving
- burning/ incinerating of biomass (including biogenic waste)

(Durieux and Haasnoot, 2006)

According to De Jager (1997): *Renewable* refers to energy sources that are not impacted over time. *Sustainable* implicates a more limited perspective; it refers to energy sources that are not impacted and which do not pollute. It means that the sources are renewable, and more moderate than conventional energy sources in terms of climate, distribution, disposal, storage, drying out and waste.

In this report, this latter definition is used, because almost every study focuses on renewable energy and the importance of avoiding pollution. For this reason, the following applies: renewable = sustainable.

Sustainable energy sources

To determine which technology for sustainable energy sources are well developed in the Netherlands, we first need to understand which energy sources are considered sustainable. For a convenient arrangement, Abeelen and Bosselaar (2004) distinguish three classes of sustainable energy sources: streamed sources, heat from the ground and the environment, and the production of waste and biomass.

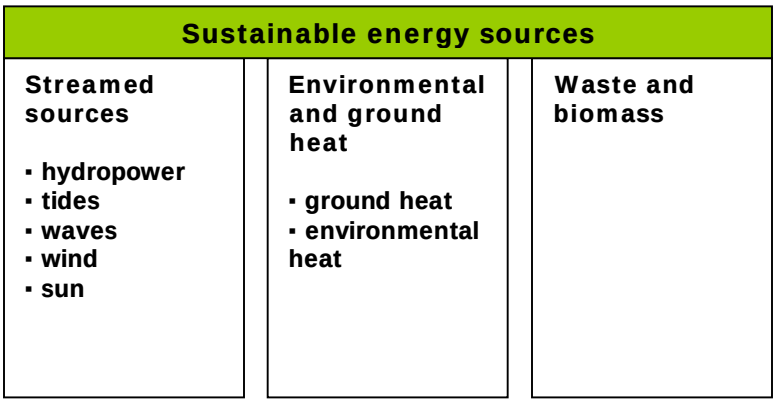


Figure 3.1 Three classes of sustainable energy source (Abeelen & Bosselaar, 2004)

A SWOT analysis helps to understand the strengths and weaknesses of sustainable energy. It provides a short overview of the characteristics of this market. Figure 2.3 illustrates a SWOT analysis in which the main dimensions of the sustainable energy market are described. These dimensions are fundamental for the objectives of this research. Strengths and weaknesses are internal factors; opportunities and threats are external factors. Previous research shows the following dimensions for this analysis.

Strengths	Weaknesses
- advanced technology - R&D facilities - large companies can act as pioneers	- there are many small companies/ starters - importance in domestic market/ little export motivation
Opportunities	**Threats**
- world-wide attention for sustainable energy/ energy efficiency - government projects for carbon dioxide reduction	- recently decreasing environmental awareness - price ratio sustainable energy vs. conventional energy

Figure 3.2 SWOT analysis sustainable energy (SenterNovem, 2006)

Figure 3.2 provides us general information about the opportunities and threats on the sustainable energy market in the Netherlands.

Development technology for sustainable energy

The Kyoto Protocol to the United Nations framework on climate change is an amendment to the international treaty on climate change, determining that the greenhouse gas emissions need to be reduced by 39 industrial nations between 2008 and 2012 with an average of 6 percent concerning the level in 1990. Every participatory country has different mandatory targets: For the Netherlands it is a reduction target of 6% [11].[1]

Above statement indicates the development of sustainable energy on world level. This report focuses on technology for sustainable energy in the Netherlands. In the definition of Statistics Netherlands (2005) an example is given of what is meant by this. Technology for sustainable development - green technology - is technology that offers or tries to offer a more environmentally friendly solution compared to an existing technology.
Nevertheless, why should we switch to more sustainable technology? The first paragraph of this report has tried to outline the importance of this development. Williams and Alhajji (2003) state in their article that various measures of US energy security indicate that the US might be heading for an energy crisis. Alarmist David Goodstein (2004) warns: 'Civilizations as we know it will come to and end sometime in this century unless we can find a way to live without fossil fuels.'
The burning of fossil fuels (coal, gas and oil) to generate energy gives off greenhouse gasses, mainly carbon dioxide (CO2), but also methane, nitrogen, dioxide, hydro fluorocarbons, perflourocarbons and sulphur hexafluoride, which contribute to global warming and airborne pollution [13]. CO2 is naturally presented in the atmosphere and helps the earth to maintain a comfortable climate, but since the industrial revolution, massive amounts of CO2 have been released by human activities.

3.2 Dutch competences

This section will describe the following research question:

1a) What are the competences of Dutch small and medium-sized companies in the sustainable energy technology sector?

The Dutch technology market on sustainable development knows successful sectors. A quarter of the Netherlands lies below sea level. The many bridges, dykes, windmills and pumping stations, show the development in surviving. By signing the Kyoto Treaty, the Netherlands has committed itself to reducing pollution emissions. Additionally, the government stimulates the research studies on sustainable development. This chapter provides an analysis of the expertise and development of the Dutch sustainable energy sector. It concludes with sectors with the best competences on the Dutch market.

3.2.1 Dutch opportunities

According to the board of the Dutch Ministry for Housing, Regional Development, and the Environment and the General Board of Energy, it is going very well with our country on development of knowledge in the field of energy (technology) [14].

[1] ***Greenhouse gases are gaseous components that contribute to the greenhouse effect. The greenhouse effect is a radioactive forcing process by which an atmosphere warms a planet [12]***

However, the Netherlands could be having difficulty with innovation. Nevertheless, several successes have been made. The board states that there are sufficient possibilities for the Netherlands to play a role in the development of technology and innovations in the energy sector, with success opportunities to export trade on the world market. They give the following reasons as comparative advantage for a country like the Netherlands:

the Netherlands as a Gas country
the Netherlands at sea: harbor, transit, and transport facilities
the Netherlands as service country (among others consultancy, engineering agencies)
the Netherlands as an off-shore country
the Netherlands as a chemistry country
the Netherlands as an agriculture expertise country
the Netherlands as a knowledge development country

(Energierapport Ministerie van Economische Zaken, 2005)

The suppliers of the energy sector, which are mostly big companies, are focusing on the foreign market, because the market in the Netherlands does not have the best opportunities due to its size. This mostly involves licensed appliances or different parts of these appliances. The Netherlands is a country that is familiar with the construction of windmills, but has large competitors in Denmark and in Germany (one of the largest constructors in windmills in the world). North American Windpower (2006) introduces Dutch wind turbines, which has the potential to be lucrative in individual households. Solar energy is slowly progressing. The majority of the Dutch suppliers of solar collectors and solar boilers are already exporting.

3.2.2 Technological and innovative capacity

The domestic production of renewable energy expressed in avoided primary energy increased in 2004 and was 1.8 percent of the total domestic energy use in 2004. In 2003, this percentage was 1.5. Table 3.1 shows the development of sustainable energy sources along the years.

Table 3.1 An overview of the development of national sustainable energy sources

Energy sources	1990	1995	2000	2003	2004	2004
						Share sustainable energy (%)
Bron						
Hydropower	0.8	0.8	1.2	0.6	0.8	1.3
Wind energy	0.5	2.8	6.9	11.1	15.6	25.6
Solar photovoltaic	0.0	0.0	0.1	0.3	0.3	0.5
Solar thermal	0.1	0.2	0.4	0.7	0.9	1.5
Heat pumps	-	0.1	0.4	0.7	0.9	1.5
Heat/ cold storage	0.0	0.0	0.3	0.7	0.8	1.3
Waste incinerators	6.1	6.1	11.4	11.5	11.2	18.4
Burning of biomass in plants	-	0.0	1.9	7.1	14.1	23.1
Wood-burning stove companies and households	7.9	7.3	7.7	7.3	7.2	11.9
More biomass burning	0.6	0.7	2.4	3.1	4.1	6.7
Energy configuration						
Electricity production	6.4	10.8	22.2	31.3	42.2	69.2
Electricity saving	0.0	0.0	0.3	0.6	0.7	1.1
Heat production	10.8	10.5	13.5	14.9	16.3	26.8
Gas production	1.4	1.9	1.9	1.5	1.7	2.8
Total sustainable energy	18.6	23.1	37.9	48.4	60.9	100.0
Total energy consumption in the Netherlands*	2.702	2.964	6.065	3.248	3.314	
Share of sustainable energy in the energy supply	0.7	0.8	1.2	1.5	1.8	

* Calculated according to the definitions of the Kyoto Protocol (CBS, 2005)

Technology for sustainable energy is increasing, as is shown in table 3.1. This increase was largely caused by the doubling of co-firing of biomass in large-scale electricity production plants. In addition, wind energy increased substantially (40 percent). The reasons were the large number of newly installed large windmills and the increase of wind (CBS, 2005).

3.2.3 Market share

The national production in the Netherlands on sustainable energy is presented in table 3.2. The relative share in national consumption has multiplied three times in less than 10 years (1.4% in 1995 and 4.3% in 2004).

Table 3.2 National sustainable energy production

	Sustainable energy production*					Net national electricity consumption	Share in sustainable electricity production in net national electricity consumption (%)
	wind	water	Solar-pv	biomass	Total		
1990	56	85	0	579	720	78.582	0.9
1995	317	88	1	809	1.215	88.947	1.4
2000	829	142	8	1.695	2.674	104.943	2.5
2001	825	117	13	2.037	2.992	107.144	2.8
2002	946	110	17	2.556	3.629	108.452	3.3
2003	1.318	72	31	2.225	3.645	109.965	3.3
2004	1.867	95	33	2.968	4.963	114.667	4.3

*** the electricity saving by heat/ cold storage is not included (EIM onderzoek voor Bedrijf en Beleid, 2005)**

Research centre EIM states that opportunities for Dutch suppliers in the energy sector are in the field of sustainable energy. The government of the Netherlands has also aimed the consumption of sustainable energy on 5% in 2010, and 10% of the total energy consumption needs to consist of sustainable energy in 2020. Table 3.2 shows the highest increase in market share in wind energy, solar energy, and biomass.

The Dutch suppliers industry has an international reputation of high, constant quality and reliability. Studies have been tuned by the Dutch parliament and tell the positive image of the Netherlands among foreign managers. The Netherlands is characterized as charming, social, independent, committing, and unique. The Netherlands is not associated as a country that is a leader in innovations. Nevertheless, it is linked as a country with inventiveness, a progressive operating procedure, and dynamic. Water management and the environment sector are considered as a core competence of the Netherlands.
As a relatively small country, the Netherlands is internationally quite important in terms of economic activity. We are considered sympathetic, because we are not a threat.

Among other things this has led to opportunities for the sectors involved with wind energy, solar energy, biomass, and energy efficiency. In addition, sector studies on internationalizing indicate prospects for companies in the (technology for) sustainable energy sector in the Netherlands (EIM, 2005):

- **Drastic improvement of efficiency by which energy and energy intensive materials are used (energy efficiency technology)**
- **Clean usage of fossil fuels (under which the catching and storage of carbon dioxide)**
- **Accelerated development and adoption of renewable energy sources**
- **Development and adoption of new nuclear technology (clean technology)**

3.2.4 Conclusion

This section showed us information in the promising segments in the technology for sustainable energy sector. We have consulted data of different research studies of organizations with high authority to select sectors with the best scores on technological and innovative capacity and market share. This provides us with the following sub sectors in the sustainable energy technology sector:

Table 3.3 Dutch sub sectors with promising competences

Sub sector	*Competences*
Wind energy	NL has lost rivalry with Denmark when it comes to wind turbines. Dutch manufacturers have been largely taken over by foreign companies. NL is very competitive in off shore building.
Heat/ cold storage (energy efficiency technology)	Dutch sector has years of specific knowledge in heat/cold coupling. In some cases, the sector has a unique position because of this. The basic technology and every extension of knowledge is mostly contributed by the Netherlands.
Biomass and Solar energy	In these sub sectors, the Netherlands has a leading role. This is for a large part due to the high quality of Dutch research and knowledge institutes, and the support of the local government.
Clean technology	Development and adoption of new nuclear technology

(prepared by the author)

3.3 US Market scale, development and investment

The research question to be answered in this part:

1b) What is the general demand on the US sustainable energy technology market?

This section provides a description of the general demand for technology for sustainable energy in the USA. Research on market scale, development and investment shows the relevance for specific sectors. Data information is collected by using research studies of Agency for International Business and Cooperation, Organization for Economic Co-operation Development, and Statistics Netherlands.

3.3.1 Market scale

Sustainable energy sources (solar, wind, and geothermal energy, hydropower and energy from biomass and waste) provide for 12% the electric power capacity in the US. 10% comes from hydro-electric power stations. Biomass and waste products, and solar, wind, and geothermal energy supply each in one percent of the total capacity (see figure 3.3). Generation of energy by advanced sustainable energy sources produces as much energy as nuclear power. 80% of the total energy production consist of fossil fuels, with an estimated value of 148 billion US dollars. The production of wind energy increases from 1989 to 2000 with 113 percent, but within the sustainable energy sector, it still stayed inferior.

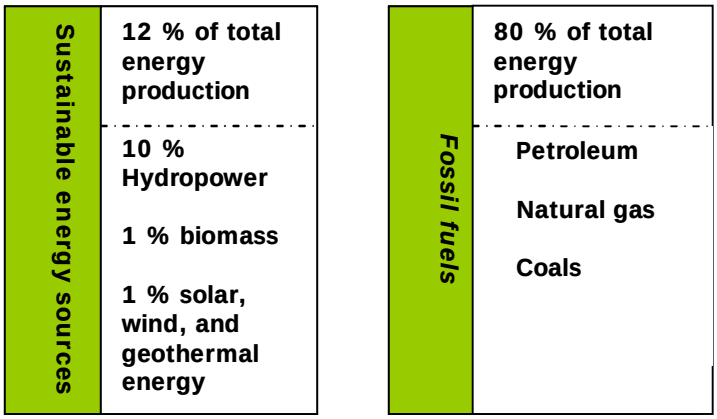


Figure 3.3 Market scale of energy sources (EVD, 2006)

The environmental sector in the US consists of more than 120.000 companies and 1.6 million jobs. This contributes to 2.1 percent of the American GNP (Gross National Product). The total revenue in the environmental sector in 2003 was 220 billion US dollars; an increase of 3 percent in 2001. Table 3.4 mentioned below gives an overview of the sales volumes by type of technology.

Table 3.4 Sales volume sustainable energy technology in the US (x million US dollars)

	2002	2003	2004	Relative increase %
Solar energy	2.170	2.780	3.480	1.604
Biomass	3.620	3.980	4.320	1.193
Wind energy	1.490	1.970	2.540	1.710
Dumping gas	1.350	1.430	1.490	1.104
Small hydro power stations	830	860	890	1.072
Geothermal energy	1.680	1.710	1.740	1.036
Fuel cells	330	450	600	1.818
Total	11.470	13.180	16.060	1.400

(EVD, 2003)

Table 3.5 shows the highest increase in sales volume in the sectors technology for solar energy, wind energy, and technology for fuel cells.

3.3.2 Market development

According to research done by the EVD, the total energy consumption in the United States during 2000-2020 will increase with an average of 1.4 percent a year. Electricity consumption will increase with 1.8 percent in the same period. This growth is mostly attributed due to usage of computers, offices equipment, domestic equipment, and industrial machinery. The consumption of sustainable energy is expected to increase with an average of 1.7 percent a year to 2020. The most important 'market drivers' for this growth of sustainable energy production are

- Tax advantages for sustainable energy production
- Renewable Portfolio Standard
- Decreasing production costs for sustainable energy
- Market growth for green electricity

Due to the environment-friendly character of sustainable energy, regulations have been imbedded in relevant laws that promote the consumption of sustainable energy. The American government has launched different incentive programs to stimulate the development of environment-friendly technology [15]. This can come in financial incentives, rules, regulations, and policies. Each state has its own resources, policies and local government. To contemplate each state as a nation can bring the market sector in a better perspective. The United States has different levels when it comes to authority: there is a federal government, state direction, and a local supervision.

Different federal programs exist about corporate deduction, depreciation, exemption, loan programs, tax credits, etc. Every state has different initiatives for the development of efficiency opportunities, this exists for the larger part of tax advantages and the so-called 'Renewable Portfolio Standard' (RPS), see figure 3.5 [16]. The RPS is an important inducement for the generation of sustainable energy, to which a number of states have been committed to. It is a flexible, market-driven policy that ensures a minimum amount in the usage of renewable energy sources to generate electricity. Because it is a market standard, the RPS relies almost entirely on the private market for its implementation. Market implementation will result in competition, efficiency, and innovation that will deliver renewable energy at a profitable expense. Local government usually applies for financial incentives and uses public campaigns.

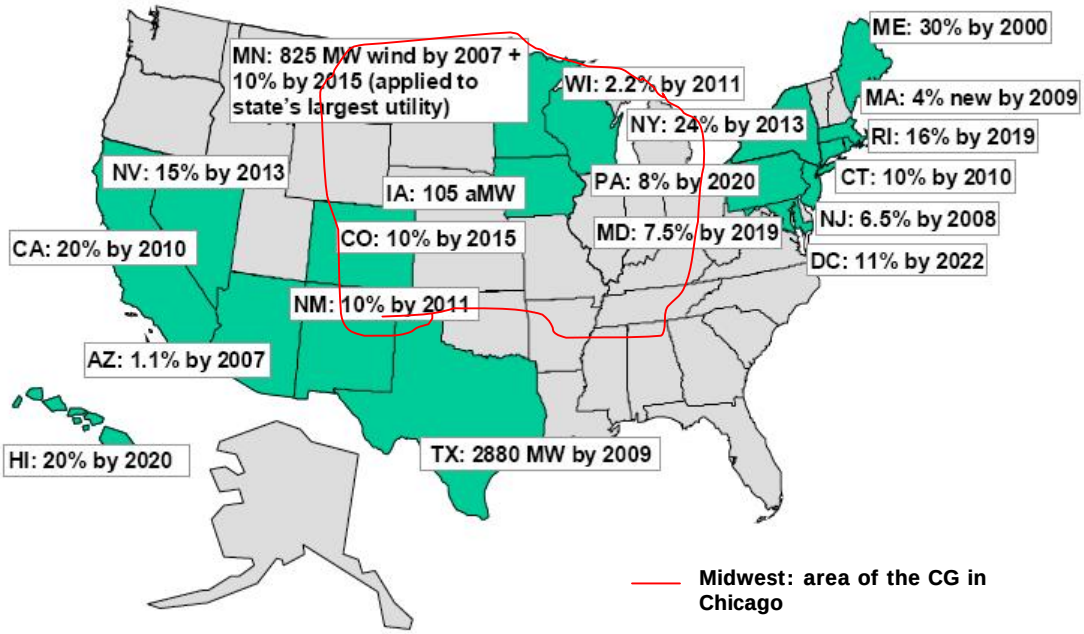


Figure 3.4 **Existing state RPS policies in the US (US Department of Energy, 2005)**

As figure 3.4 illustrates, the Midwest is an area with few countries committed to Renewable Portfolio Standards. Chicago, in the state of Illinois, does not have a RPS, but does have a Renewable Portfolio Goal: 8% of total electricity production needs to be generated by sustainable energy by 2013. This RPS and other incentives stimulate the sustainable development and with this contribute to the general demand.
Table 3.5 presents an overview of the market development in the United States.

Table 3.5 Market development environment United States

Industry	Revenue (billion US dollars)	Companies	Jobs	2003-2006 (average annual growth in %)
Services				
Laboratory services	1.3	720	14.300	0.6
Treatment of water	2.6	26.000	140.300	2.8
Waste management	42.0	11.200	324.000	3.2
Toxic waste products	4.7	1.200	31.100	-0.8
Decontamination	12.2	3.500	97.500	1.6
Industrial consultancy	18.7	3.660	199.300	1.8
Equipment				
Water and chemicals	20.8	2.900	146.700	3.2
Instruments and info systems	3.9	1.300	31.500	3.8
Treatment of air	18.6	1.200	103.800	2.8
Waste products	9.6	2.600	77.100	1.6
Process and prevention tech.	1.3	600	35.200	6.0
Natural resources				
Water	31.6	61.000	154.300	2.6
Recycling	14.9	4.400	126.400	4.0
Clean/ sustainable energy	11.3	1.400	163.500	13.0
Total	220.5	121.680	1645.800	3.3

(EVD, 2005)

The largest growth (13 %) is to be expected in the sustainable energy sector; energy savings technology and technology in the field of prevention (application of clean technology).

Data that is more recent shows a trend in increasing attention for technology for biomass energy conversion in the USA (Report Economic Perspective, 2006; New York Times, 2006)[2]. In particular, the Department of Energy (DOE) is coordinating with the Department of Defense on expanding use of domestic energy sources such as biomass for production of new low-emission transportation fuels for military and civilian use [17].

3.3.3 Market investment

According to the Organization for Economic Co-operation and Development (OECD) the International Energy Agency, the energy consumption will rise to 52% globally by 2030, a 1.6% annual increase, led by developing countries of which many are expected to escape energy poverty and improve their living standards. Moreover, Bradley et al (2005) state that the Energy Information Administration (EIA) projects that energy usage in developing countries will approach the energy usage by developed countries by 2025. For developing countries energy intensity per unit of economic output is expected to gradually decline as industries are modernized, while per capita use of energy increases with growing personal incomes.

According to Dobriansky (2006), substantial investment in energy infrastructure will be required to meet the anticipated growth in demand [18].

[2] Technology for biomass energy can derive ethanol from crops which is a potentially sustainable energy resource that offers environmental and long-term economic advantages over fossil fuel (wikipedia.org)

The economic development to technology innovation focuses on building viable markets, domestically and internationally, that will attract investment in less energy-intensive products, cleaner and more energy-efficient processes.

Renewable energy professionals claim that the biomass industry continues to grow and present opportunities to capitalize on the increased focus on renewable energy sources. The US State Department Bureau of International Information Programs also acknowledges this; focusing on specific characteristics of new technologies that are of special interest to certain buyers, niche markets have helped to set learning processes into motion and attract investment in technology development (coal gasification and biomass energy conversion) [19].

3.3.4 Conclusion

This section has provided information on the general demand of the United States. Data is collected and analyzed on the market scale, development, and market investment. This information shows us opportunities for the following sub sectors:

Table 3.6 Opportunities US market in sustainable energy technology

Sub sector	*Focus of general demand*
Technology for wind energy	highest volume on market scale
Technology for solar energy	highest volume on market scale
Technology for fuel cells	highest volume on market scale
Clean technology	largest growth in market development
Energy savings technology	largest growth in market development/ highest market investment opportunity
Technology for biomass energy conversion	Recently published opportunities in market development/ increasing demand in market investment

(prepared by the author)

4 Segment selection

The research question to be answered in this part:

1c) Which segments can be identified based on the confrontation of the Dutch competences and the US general demand?

The previous chapter discussed the development and domestic market production in the Netherlands and the US. Statistical data on competences, market scale, market development and market investment showed the promising segments of these countries. This chapter deals with the segments selection of the sustainable energy sector as is explained earlier in section 2.3.

4.1 Criteria Consulate General

Multiple interviews with the consul general deputy in Chicago and the economic officer of environmental issues at the Consulate in New York have resulted in a list of different points of criteria: innovation, domestic market position, product capacity, export experience, firm size, and international orientation.

Innovation
Innovation, e.g. technological turbulence, can act as an export stimulus (Dichtl et al, 1984; Katsikeas, 1996). Morgan (1999) agrees and states perceived technological turbulence, as well as product-market turbulence, in the domestic market significantly related to export strategy development. According to the CG in the USA it is of great importance to include innovation in your production process if you want to proliferate on the US market.

Domestic market position
A company with a strong position on the domestic market is more likely to meet the requirements of human and financial resources to go overseas. Firms with narrow domestic coverage are prohibited from expanding to foreign markets until a process of expansion at home has been experienced first. Reid (1983) reports a positive relationship between intense domestic market competition and greater export involvement. However, Cavusgil (1984) indicated that there is no real shift between levels of the home market competitive intensity and stages of experimental, active and committed export involvement.

Export experience
A company which is familiar with the foreign policies and demand for adaptation is more likely to survive in the foreign environment.

Product capacity
The Consulate General in Chicago has selected this dimension, because experience has shown that even if a company has a distinguished and innovated product for the US market, and the right human and financial resources to export overseas it is not enough. If the company cannot apply to the demand of the suppliers, e.g. large amount of the products, it does not have much chance to survive.

Firm size
Katsikeas et al. (1996) propose that larger exporting manufacturers are widely considered to possess more financial and human resources; enjoy higher levels of scale economies; and perceive lower levels of risks about foreign markets and operations.

International orientation
A firm who is internationally oriented is more likely to adapt in a foreign environment than companies that are not internationally oriented. Miles & Snow (1978) suggest that entrepreneurial firms experiencing uncertain environments tend to enter new markets more frequently than conservative firms.

The first two dimensions were considered the most important by the CG: innovation and domestic market position. These two dimensions are similar to the determinants for foreign expansion ensued from literature studies (see figure 2.1). Figure 4.1 illustrates how we have come to the relevant segments used to address companies about their export potential and support needs.

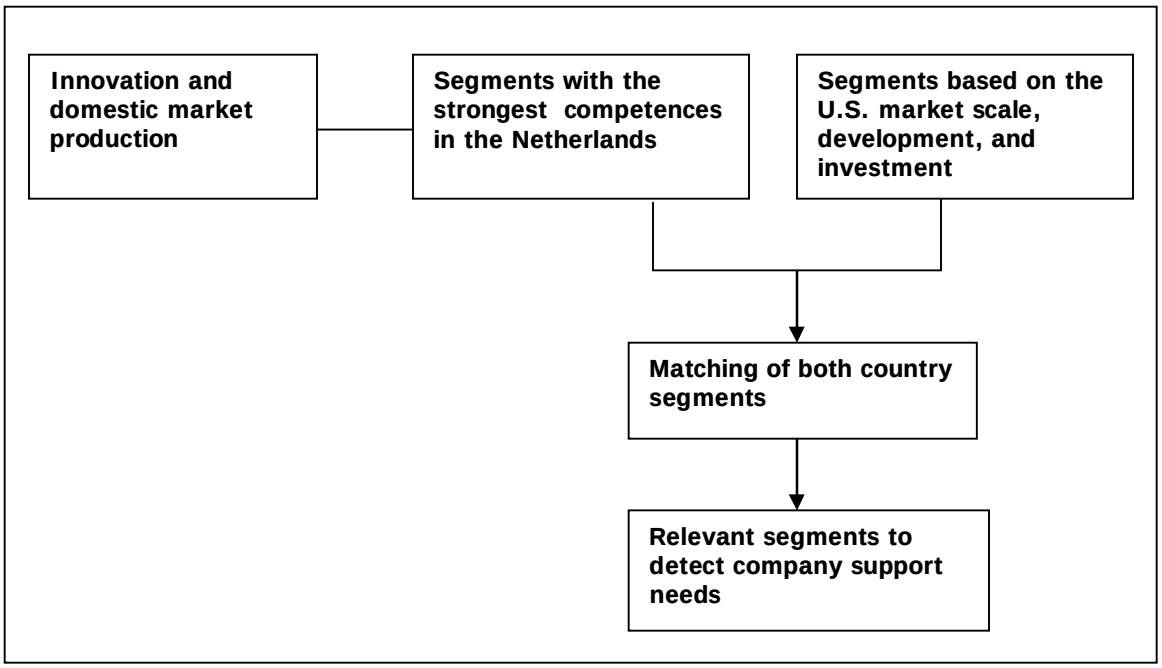


Figure 4.1 Segment selection of the Dutch and US market within the sector technology for sustainable energy (prepared by the author)

4.2 Conclusion

Table 4.1 describes the matching of the segments of the two countries. Both the Netherlands and the USA have economic interests in the technology for wind energy, solar energy, biomass, energy efficiency and clean technology. This is described in table 4.1.

Table 4.1 Segment selection for technology for sustainable energy sector and its opportunities

The Netherlands	Opportunities	USA
Wind energy	Development of offshore activities	Wind energy
Solar energy	Knowledge development (mostly focused on application outside of the Netherlands	Solar energy
Biomass	Development of productive plants, logistic processing, and processing and refinement of bio fuels	Biomass
Energy efficiency	Technology for energy savings/ storage	Energy efficiency
Clean technology	Equipment and technology for in-process (rather than end-of-pipe) pollution prevention and waste treatment and recovery	Clean technology
	Equipment and technology application for fuel cells.	Fuel cells

(prepared by the author)

We will analyze companies in the underlined segments in table 4.2. Companies in these segments will be questioned on their support needs when exporting to the USA. This will be discussed in the next chapter.

5 Company export potential and support needs

The research question to be answered:

2. **What are the relevant support needs in the identified segments with respect to exporting to the USA?**

5.1 Data collection

We have used the website that is launched by the economic officer of the Consulate General in New York to gather information about suitable target companies [20]. Together with the database of the Suppliers of Environmental Equipment and Technology Foundation we narrowed down the companies to the segments selected in the previous chapter [21]. It seemed that not every company had an up to date company profile and could not be addressed for this research. In total, 115 companies have been approached by email to fill out the online questionnaire. They were asked for their cooperation in a national research about the technology for sustainable energy. This resulted in a response of 21% (24 respondents), of which we have used twenty-one companies in this assessment. One respondent was unable to contribute to this research electronically; this questionnaire was conducted by phone. Two companies (hydropower) were not included in the assessment, because they were not part of the segment selection described in table 4.2. One organization is an energy research centre that focuses on environmental energy technology sources in the same segments as is stated earlier. However, this company has more than 500 employees: considered as a large company and could not be included in this analysis. The other companies are all part of the selected segments and included in the result analysis.

The questionnaire is developed and based on the theories and models proposed by Katsikeas et al, Seringhaus, Wood and Robertson, ans Mekkelholt and Orelio as is described in Annex B. The export (readiness) potential is based on the instrument used by the USDA. The scores of the companies are individually assessed via this tool. In the next section, an analysis is presented of the main results.

5.2 Analysis of results

5.2.1 Profile respondents

Figure 5.1 shows the respondents used in this result analysis and categorized in different segments: technology for energy efficiency, wind energy, solar energy, biomass, and clean technology.

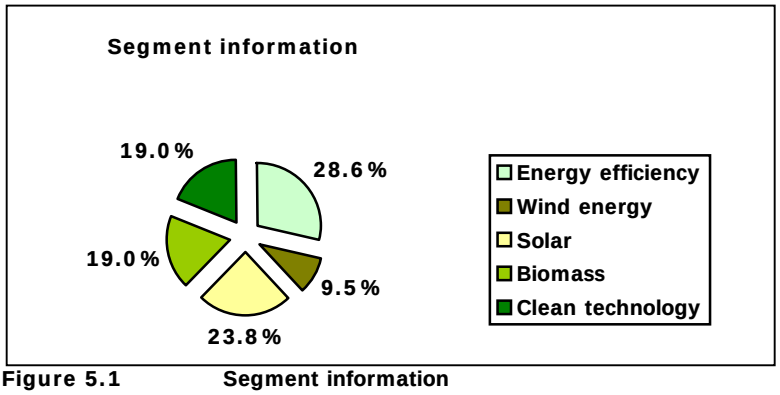


Figure 5.1 Segment information

The size of the companies, measured by the number of employees, is shown in figure 5.2. The target companies were small and medium-sized firms. To define the number of employees we used the definition of the United States; Small companies employ less than 100 employees, and medium sized companies have less 500 employees [22]. The majority of the companies have less than one hundred employees, as is illustrated in figure 5.2.

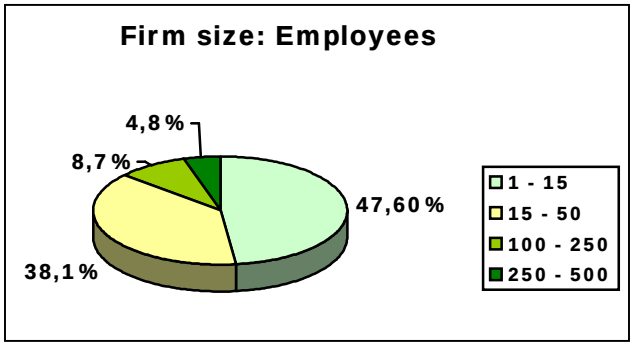


Figure 5.2 Firm size; Number of employees

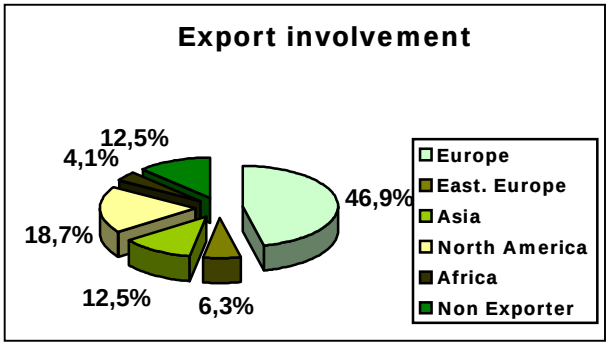
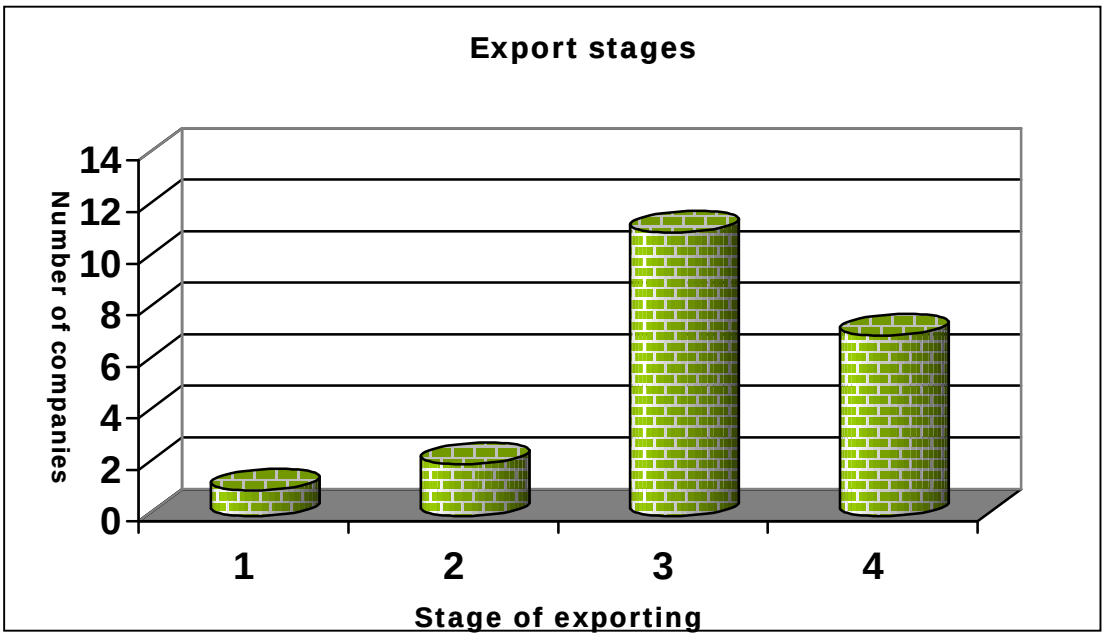


Figure 5.3 Export involvement

Figure 5.3 shows the export involvement measured in the variety of exported countries. Exports to the United States and Canada are both merged under North America. 46.9% (15 respondents) of the companies is exporting to Europe. One company is not involved in exporting, and two are willing to start exporting (total of 12.5% of export involvement). This concludes that 85.7% (18 companies) of all companies are already exporting. Their stages of export differ however, as is illustrated in figure 5.4.

5.2.2 Exporting stages

In order to determine the stage of exporting, data is collected by means of three questions and an additional interview. This has resulted in the degree of exporting of the participating companies. We have used the stages of exporting obtained by Seringhaus, which we discussed in chapter two. Seringhaus distinguished four different exporting stages in his theories on export promotion that are used in this study as is shown in figure 5.4.
A stage of exporting presents the stage of international development the company has reached. Each stage of exporting has different motivational, informational, and operational barriers. These barriers determine the set of company export needs.



Description (Seringhaus & Rosson, 1990)	*Stage of exporting*
Non – exporter	1
First time exporter	2
Expanding exporter	3
Continuing exporter	4

Figure 5.4 Stage of exporting

In the next section we describe the export readiness of the companies in these export stages. In order to have a better understanding of these companies, we have differentiated the segments to the export stages as is illustrated in table 5.1.

Table 5.1 Segments differentiated to the internationalization process

Stage of exporting/ Segments	Non exporter	New exporter	Expanding exporter	Continuing exporter
	Wind energy	Clean technology Solar energy	Solar energy Wind energy Biomass Energy efficiency	Energy efficiency Clean technology

Figure 5.5 shows that more companies are willing to expand to a new market. This agrees with the reception of competitiveness. Expanding exporters perceive competition to be higher than continuing exporters (91% versus 57%).
The USDA has developed an instrument to rate the export readiness of a company. The questions used for this construct were included in the questionnaire. The answers to these questions are set up against the stages of exporting in figure 5.5 and on average of each stage is presented in figure 5.6.

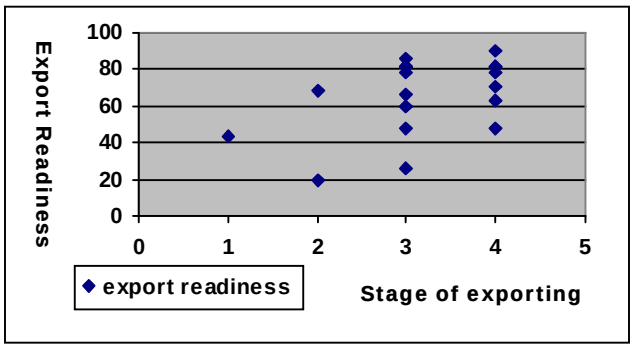


Figure 5.5 Export readiness to stage of exporting

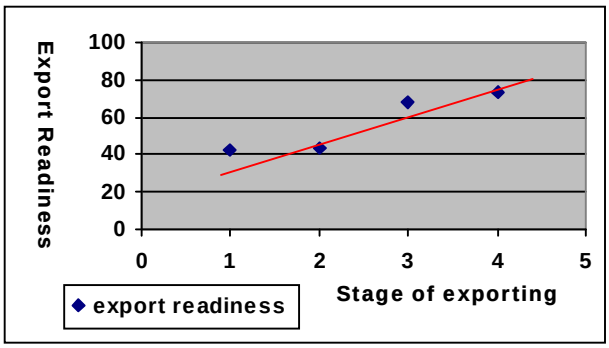


Figure 5.6 Average scores on export readiness to stage of exporting

The results indicate a positive relationship between the export readiness and the stages of exporting. This implies that the more developed a company is, the more resources and knowledge it will possess to be ready for export. The export readiness is based on eight statements in the questionnaire. Companies were asked to select the answer that was most applicable to their company.

5.3 Environmental factors

The domestic market environment can significantly affect the "fit" between resources and capabilities of the firm and the overseas opportunities and threats that are perceived. Therefore, we have included the environmental forces in the questionnaire. Figure 5.7 shows the perception of the companies on the different environmental factors: cultural, legal, political and economical.

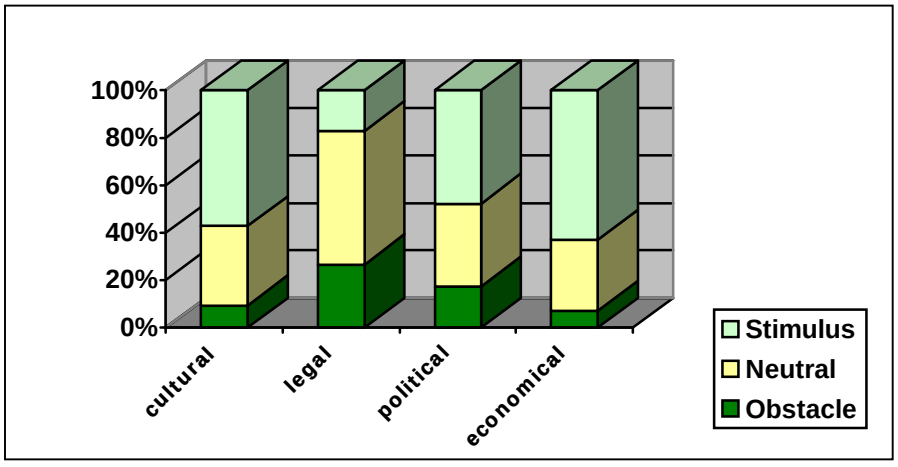


Figure 5.7 Perception environmental factors

The results indicate which environmental factors stimulate or act as an obstacle when a company wants to or is involving in export activities to the USA. Annex C provides a detailed overview of the variables rated in the questionnaire. The strongest obstacles and

stimuli are described below. The percentage illustrates how many companies relatively agreed with that particular statement.

Table 5.2 Main obstacles and stimuli

Environmental factor	Obstacle	%
1. Legal	Product standards imposed by the USA (e.g. local assembly laws, product packaging and labeling requirements, local safety and environmental regulations)	52%
2. Political	Tariffs, import duties, and taxes on your products in the USA	29%
3. Legal	Political strength and leadership	29%

Environmental factor	Stimulus	%
1. Cultural	Language in the USA	86%
2. Economical	US Gross National Product (GNP)	76%
3. Economical	US energy consumption (fossil fuels)	76%

The legal framework is the main constraint when a company decides or is exporting to the USA. All companies already exporting to the USA were in consensus on the first two statements above. Only one company that has export activities in the United States experienced the political strength and leadership as a stimulus. One company explained that it makes a big difference when political leadership is in the hand of the democrats or the republicans. Each political party has its own preferences and policy about the environmental interests. Tariffs and taxes are stated second in the range of constraints.
The English language is the strongest stimulus when exporting to a foreign market like the USA. Economical factors are second and third. 76% of the respondents agreed that the GNP of the United States stimulates to enter the export market. Companies use the GNP to estimate the value of goods and services produced in an economy.
The US is the single largest energy consumer in the world (Flexible Energy Inc, 2001). This energy consumption works as a stimulus for companies to export in sustainable energy technology. However, one company that is already exporting to the US indicates this variable as a strong obstacle.

5.4 Company support needs

Export assistance programs will have their greatest impact when the assistance provided corresponds with the need of the companies served, as mentioned in section 2.5. First, we will discuss the main reasons for companies to start exporting. Then in order to identify the various needs of the sustainable energy technology companies, we describe the relevance of the twenty one companies on support activities. Section 5.4.3 gives the results of the main constraining factors in exporting to the USA. We will complete this section with the support organizations the companies have consulted.

5.4.1 Main reasons to export

To understand why firms engage in exporting, we can assume that the driving forces to start or exploit export activities are because companies want to use and develop their resources to achieve their organizational objectives. Understanding these export motives can provide guidelines for effective export planning and export promotion (Katsikeas, 1996).

Table 5.3 Main reasons to export*

Reasons	Scale
1. Unique product/ technology competence	3.5
2. Growth and profit goals	3.1
3. Foreign market opportunities	3.0
4. Limited domestic market	2.9
5. Economies of scale	2.6

*** Response on a scale from 1 to 4, four was the highest score**

Companies were asked to indicate the importance of a particular motivation to export. Most of the companies selected the unique competence of their product to be of great importance to start exporting (3.5 on a scale of 1-4, four being the highest). To extend sales of a seasonal product and excess capacity of resources were indicated as least relevant. 52 percent of the respondents considered a stagnant or declining domestic market irrelevant for exporting. Whereas, more than 70% regarded a too limited domestic market as an important reason to start exporting.

5.4.2 Relevant support activities

As discussed before, companies that are in a different stage of exporting are likely to have different needs for export support. Therefore, respondents were asked to indicate those support activities they perceived as relevant to their own company. The list of support activities from which the companies could choose is based on the research done by Orelio and Mekkelholt (2003).

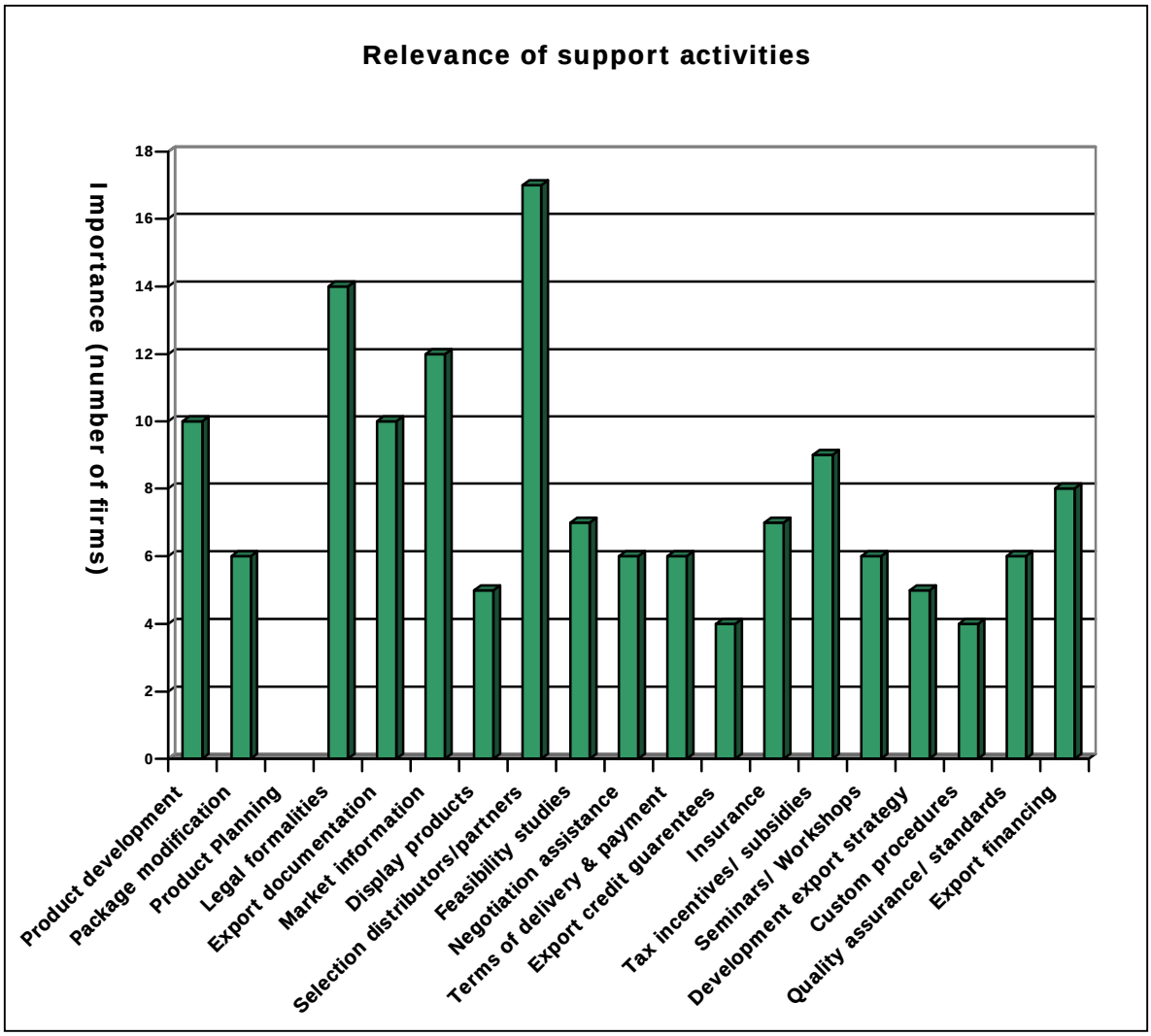


Figure 5.8 **Relevant support activities**

Figure 5.8 illustrates that there are five support activities indicated as important by the majority of the companies (≥ 50%):

1. **Selection of distributors and partners**
2. **Legal formalities**
3. **Market information/ market research**
4. **Product development**
5. **Export documentation**

In order to organize efficient export assistance programs it is most advisable to emphasize these support activities, as specified by the respondents. This topic will be further discussed in chapter six.

5.4.3 Main constraints in exporting

Companies were free to motivate the various constraints they experience or perceived when they are or will be exporting to the United States. This was done by means of an open question: *What are the constraining factors (main barriers/ difficulties) for your company to export its products or services to the USA?*

According to Seringhaus, to understand the export barriers companies face, we need to consider the stage the company has reached in its export development. He distinguishes three categories of export barriers: (1) motivational; (2) informational; and (3) operational/ resources-based. These dimensions are included in table 5.9 to describe the different constraints companies' experience. Table 5.9 describes the main barriers companies experience according to the different stages of exporting.

Stage of exporting	1. Motivation
Expanding exporter	- Costs of marketing and sales in relation to turnover - Fast growing markets Europe - Good subsidies western Europe - Cultural differences - Distance - US is more cost driven than sustainable - Focus on European market - Reliability of customers - Consciousness of habitants about the environment
Continuing exporter	- Conservative sector - Perceived difficulty to enter large market - Time
New exporter	- We are a start up company (no time or money to afford risks)
	2. Information
Expanding exporter	- legal framework - Unfamiliar US market (general demand and profile competitors)
Continuing exporter	- No exposure market demand US - No awareness prices of product and position of competitors
Non – exporter	- legal framework/ habits (huge contracts, long negotiation periods, high liability demands combined with claim culture)
New exporter	- Failure to find good contacts
	3. Operation
Expanding exporter	- Being a small company - Finance capacity - Lack of internal capacity of the firm - Lack of capacity (marketing/ financial) - Small company (cant afford/ support long legal fights) - Getting product UL certificated
Continuing exporter	- Acquiring UL certificate - Lack of marketing capacity of US partner - product in development stage

Figure 5.9 Main constraints specified by companies when exporting to the USA

This table shows that expanding exporters face motivational barriers. According to Seringhaus and Rosson (1991), only non-exporters and new exporters perceiving such

constraints. This implies that companies considering entering the US market face barriers on non-exporting level, even though they are already exporting. The next chapter describe the type of support needs related to this.
The respondents were also asked whether they have inquired information concerning exporting. 76.2% of the companies have not inquired information about international trade agreements of the Netherlands relevant for the export of their products and services. 72.7% of these respondents are expanding exporters, 85.7% are continuing exporters, and the remaining are all new exporters. Information about governmental export is also minimally inquired: 66.7% of all companies have never asked for information about governmental support for export (75.7% are expanding exporters, 57.1% are continuing exporters, and all non-exporters).
Almost all companies (90.5%) are willing to invest in product or process adaptations to be able to match international market requirements.
Companies were also asked to point out their overall awareness of the cultural differences between the Netherlands and the USA: 81% of the companies answered positively.

Below an overview is given about the main constraints identified by the companies. This is compared with the main problems of exporters and non-exporters recognized by Seringhaus.

Table 5.4 Main identified constraints faced by Dutch companies when (thinking about) exporting to the USA

Main identified barriers respondents
1. Large (Western) European market
2. Legal framework (expensive, time-consuming, complex)
3. No awareness/ information US general demand
4. Lack of capacity (financial, internal, marketing)
5. No information foreign distributors

The barrier most frequently mentioned was the market potential in Europe. Compared to the USA, companies prefer exporting to Europe because of its subsidies and the geographical distance. Especially when exporting to the US, companies are afraid of big lawsuits. They find it a lot of trouble to prepare for all documentation required to do business.

Table 5.5 Barriers of non-exporters and exporters

Major problems perceived in exporting (top five)	
Non- exporters	*Exporters*
1. Foreign competition	1. Governmental barriers (tariffs)
2. Lack of information on foreign markets	2. Different competitive practices
3. Lack of staff time	3. Selecting a reliable distributor
4. Service difficult in foreign markets	4. Inadequate transportation systems
5. Large domestic market	5. Existence of non-tariffs barriers

(Seringhaus and Rosson, 1990)

Respondents are also not familiar with the US market, and believe that the mentality in the United States is not stimulating sustainable development. This is ranked secondly among the major problems experienced by non-exporters, while this barrier is identified third

among already exporting firms by respondents in this research. Just like the lack of internal capacity (ranked fourth in table 5.4), this is also a major problem for non-exporters. Seringhaus indicates that exporters have major problems with selecting a reliable distributor. The questioned companies indicated that they have no information of foreign distributors.

5.4.4 Support organizations

The companies in focus consulted different support organizations. These organizations are displayed below in figure 5.10.

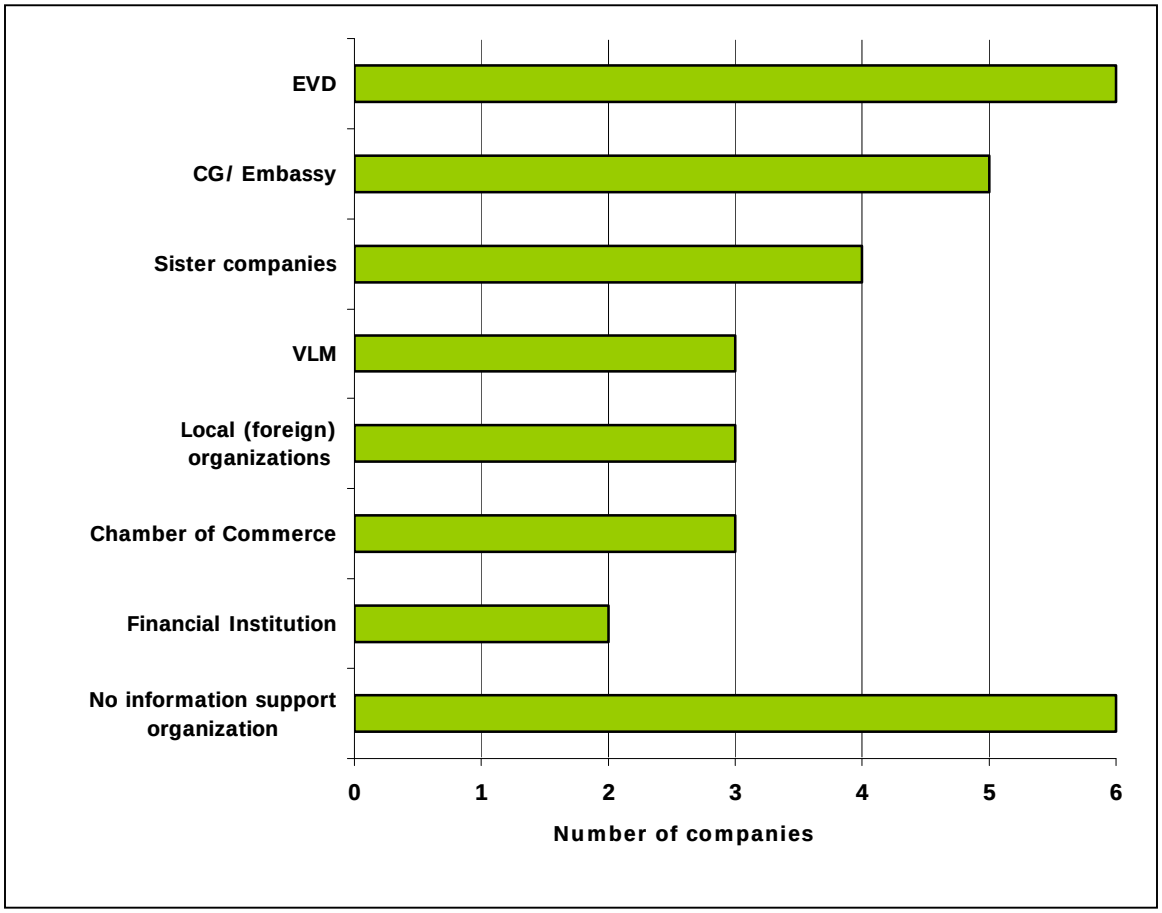


Figure 5.10 Identified support organizations

This figure shows that the Agency for International Business and Cooperation (EVD) is consulted most frequently compared to other organizations. Research study by the Ministry of Economic Affairs reports that the publicity of the EVD is maintained 13% in 2003. Research states that the publicity of the EVD is ranked third, after the Chambers of Commerce and banks [22]. Companies asked for information about identifying important (potential) suppliers, general market information, information about translators, and legal and fiscal support (PESP/ PSB tools). The CG was consulted for local support (seminars/ exhibitions), general market information, information concerning business partners and local agents. Financial institutions were asked for information on security of monetary means. 29% (6 companies) had no information about available support organizations.

5.5 Conclusion

This chapter reviews the answers of twenty-one companies in the segments specified in table 4.2: technology for wind energy, solar energy, biomass, energy efficiency, and clean technology. They were assessed on their export readiness and classified according to their stage of exporting (see table 5.5 and 5.6). Therefore, for its export promotion programs the CG can take into account and select companies on their export involvement. A positive relationship is found between the export readiness and the stage of exporting.
In addition, almost all respondents have export orientation while being in different stages of the internationalization process as defined by Seringhaus (1990).

As is mentioned in section 2.5, export assistance programs, which constitute the objective of this project, have their greatest impact when the promotion assistance provided, corresponds with the needs of companies served. Therefore, we used two independent sources of information to identify the needs of companies in the technology for sustainable energy sector: the twenty-one sustainable companies, and relevant literature. The needs identified in this research were highly emphasized by both sources. The top ten indicated support needs are:

1. **Selection of distributors/ partners**
2. **Legal formalities**
3. **Market information**
4. **Product development**
5. **Export documentation**
6. **Tax incentives/ subsidies**
7. **Export financing**
8. **Internal capacity improvement**
9. **Marketing assistance**
10. **Information concerning relevant competitors**

In the next chapter, we will compare the identified needs to the export promotion theories of Seringhaus and Rosson. We will also discuss the available assistance programs of the Consulate General, and evaluate the support activities in order to suggest support interventions to the CG.

6 Export promotion support

The research question to be answered:

3. Which export promotion assistance should the CG Office in Chicago provide and how can this be carried out?

The main objective of this research is to suggest export support interventions. Export promotion was defined in chapter one as public policy measures that actually or potentially enhance export activity at company, industry, or national level. The Consulate General stimulates and assists Dutch companies through a variety of export development activities to engage in export involvement. The large US market offers opportunities for companies involved in sustainable energy technology. At the same time companies hold back because of this complex and large market. Export promotion programs include a variety of initiatives to deal with the barriers.
This chapter discusses first the theories of Seringhaus on export promotion used to form proposals to the CG on how to support the Dutch small and medium-sized companies. These theories are compared to company support needs, as earlier identified in section 5.4. Section 6.2 reviews the available support activities of the CG. Section 6.3 evaluates the identified support activities, and this is followed by an export support matrix in 6.4, Section 6.5 suggests a strategic approach for implementation. Section 6.6 ends with a conclusion of this chapter.

6.1 Export promotion assistance

We will first make an analysis of the kind of support needed by the companies. For this analysis, we use the decision approach as was explained in section 2.5.3. Export needs are best understood in relation to the stage of international development the organization has reached. The decision approach makes it possible to formulate specific initiatives that can be undertaken to provide export assistance to companies that are systematically grouped.
Export assistance programs will have their greatest impact when the assistance provided corresponds with the needs of the companies served. Thus, the Consulate General needs to take into account, when organizing its support interventions, the specific needs of the Dutch companies. This section describes the table used in section 2.5.5, added with the main support needs identified by the companies. Table 6.1 shows the segments in which these companies are categorized, according to the four stages of exporting.

Table 6.1 Sector segments and relevant company support needs according to the stages of exporting

Type of export involvement	*Non-exporter*	*New exporter*	*Expanding exporter*	*Continuing exporter*	
Respondents portrayed in segments	Wind energy	Clean technology, Solar energy	Solar energy, Wind energy, Biomass, Energy efficiency	Energy efficiency, Clean technology	*All segments*
Company needs identified in this research	Feasibility studies Tax incentives	Display products Feasibility studies Insurance Quality assurance Export financing	Product development Package modification Negotiation assistance Credit guarantees Insurance Tax incentives Export strategy Custom procedures Quality assurance Export financing	Product development Tax incentives Seminars and workshops Develop export strategy Quality assurance	Legal formalities Export documents Market information Selection distributors Delivery/ payment terms

This matrix shows what kind of support initiatives the Consulate General can embark upon for each determined group of companies. In this way, export assistance programs can be organized in a better and more efficient way.
In order to formulate appropriate support interventions, we first give a short overview of the main export assistance programs used by the CG. The next section reviews this and the support the CG can provide to the selected segments.

6.2 Trade promotion CG

This section discusses the main support interventions the CG is currently involved in and follows with describing possible assistance the CG can offer to Dutch companies. The CG has different instruments to support company needs; a short description is given in table 6.2.

Table 6.2 Main instruments Consulate General

Support programs	*Description*	*Specific intervention*
Collective activities	Providing information to companies to assist in their economic interests in the foreign market	Business trips, collective participation to stock markets, exhibitions
Seminars	Facilitating branch organizations in the long term strategy	Seminars and workshops
Individual activities	Providing companies in specific sector market information	Individual market scanning
PPP instrument	Sponsoring local activities to promote the image of NL	Promotion budget

(source: Vries, T. de 2006)

The CG works with different support organizations to facilitate in company support needs. One of the main organizations is its counterpart: Agency for International Business and Cooperation (EVD). The EVD is the primary contact in the Netherlands. The EVD plays a central part in all public export development and promotional activities in the Netherlands. It utilizes the services and coordinates the export promotional activities of several other public and private agencies and organizations.

6.2.1 Relevant support activities

As explained in section 2.5.2; one way of understanding how organizations address company export needs is through considering the barriers faced in international trade. The previous chapter discussed the main barriers identified by the companies in question. These were large (Western) European market; Legal framework (expensive, time-consuming, and complex); No awareness/ information US market demand; Lack of capacity (financial, internal, marketing); No information foreign distributors.

The three support activities indicated as most important by the majority of the companies (≥ 50%) cover almost all top five barriers (described in table 5.4):
1. **Selection of distributors and partners**
2. **Legal formalities**
3. **Market information/ market research**

In order to organize efficient export assistance programs it is most advisable to emphasize these support activities. As table 6.2 illustrates, the CG currently has instruments that cater to these support needs. The collective activities and seminars are a way to get familiar with the market demand, and sometimes to meet distributors. The individual market scanning provides a company market information relevant for its product or services.

6.2.2 Available support opportunities

This section discusses the current support activities by the CG. Seringhaus describes alternative types of assistance from which companies can draw substantial resources. The CG has the willingness or the capacity in its support network with other organizations to offer alternative support programs. Examples of these are:

Table 6.3 Alternative support programs

Support programs	
1. Information and publications	**Information on export incentives and facilities, customs and foreign trade regulations, international finance** **Bid and sell opportunity information** **Periodicals, directories, and reference handbooks** **Newsletters and trade summaries**
2. Education and assistance	**Trade awareness and opportunities** **Export documentation** **Advisory, consultative services on export marketing problems** **Joint assistance schemes for small firms** **Access to official export promotion programs**
3. Activities at home	**Congresses, publicity to foster export orientation** **Encouragement of direct contacts abroad** **Dissemination of information about available services**
4. Promotional activities abroad	**Promotion of country/ product exhibitions and publicity** **Assisting firms to make business contacts via trade fairs, trade missions, trade representation** **facilitating export operations**
5. Structuring export promotion activities within the organization	**Advice and counseling at firm level**

(Seringhaus, 1991)

6.3 Evaluation of support activities

After proposing these support interventions, we also need to consider the effectiveness of the programs and services offered in order to improve the support activities and make it more efficient and suitable.

First, whenever public funds are involved there is a need to show that expenditures serve some good purpose. Second, it is important to demonstrate that the programs have a positive impact on companies (that is at micro level). Companies need to see that export promotion programs will help them to learn more about foreign markets and marketing and thus, become stronger international competitors.

Seringhaus and Rosson (1991) describe a few concerns regarding the evaluation of support activities:

1. If a company sees that support can benefit their exporting operations, it will be more likely to use public organization programs.

2. As companies become increasingly experienced in exporting, their needs become more specific so that general support is less beneficial.

3. Companies rarely evaluate the impact of export promotion programs on their operations because it is most likely minor and/ or difficult to establish.

4. Management can help to improve export promotion support by providing feedback to the relevant public organization.

Evaluations are most useful when they establish the effect of programs at company level as well as in an overall cost-benefit sense. Therefore, a systematic and continuing evaluation is required to determine program impact in the long term.

6.4 Export support matrix

In this section, we describe the export support activities by applying the export promotion theory of Seringhaus to the identified company needs. These proposals are presented in the export support matrix illustrated below. The support needs, which are identified by the companies in this research, are classified to the exporting stage they have received. Specific support interventions are described to the different barriers companies can experience.

Type of export involvement	*Non-exporter*	*New exporter*	*Expanding exporter*	*Continuing exporter*	*All companies*
Respondents portrayed in segments	Wind energy	Clean technology, Solar energy	Solar energy, Wind energy, Biomass, Energy efficiency	Energy storage, Clean technology	*All segments*
Key questions	Should we even consider exporting?	Should we initiate exporting? Which market should we investigate?	Which new market should we enter and how?	How can we achieve better performance?	
Company needs identified in this research	Feasibility studies Tax incentives	Display products Feasibility studies Insurance Quality assurance Export financing	Product development Package modification Negotiation assistance Credit guarantees Insurance Tax incentives Develop export strategy Custom procedures Quality assurance Export financing	Product development Tax incentives Seminars and workshops Develop export strategy Quality assurance	Legal formalities Market information Selection distributors Delivery/ payment terms Export documents
Export promotion focus and typical initiatives	Advertising Local seminars Export bulleting/ newsletter Export success stories	Seminars Export bulletin/ newsletter			Motivational
		Market reviews Supplier/ Buyer newsletter Custom market research	Market visits Export seminars/ meetings Export newsletter	Export seminars/ meetings Export newsletter	Informational
		Trade missions Financing, insurance	Trade fairs Trade missions Financing, insurance	Trade fairs Foreign buyer visits Sales offices Financing, insurance	Operational/ Resource

Figure 6.1 Export support matrix

6.5 Implementation

Literature studies describe a framework of marketing services with the essential purpose to match exports with the requirements of importers. Four main elements are distinguished: market information, market product testing, Human Resources Development, and market Entry Services.

Market information

A number of focused information services are available, including

1. A comprehensive guide for exporting to the USA, which profiles the country's trade relationship with developing nations, industry sector opportunities, the legal framework, as well as practical hints on both market access, and approaching the market;

2. Product surveys on the US market with the specific emphasis on product categories most suited to the Netherlands;

3. A news bulletin with comprehensive coverage of the CG's activities and specific market opportunities as well as information on related international agencies such as EVD or other trade promotion organizations;

4. A trade documentation centre which acts as a resource for information on trade.

Market product testing

A permanent product display area used for specially selected product groups which serves as an ongoing exhibition to importers. The CG or a promotion organization in the USA undertakes both product tests (concerned with quality, finish, packaging, pricing) and surveys of importers (or their reaction to and reception of displayed products). This information is channeled to the exporter to establish business contacts and to provide feedback.

Human Resources Development

Seminars and workshops for both company executives and trade promotion officials from the Netherlands have their focus on techniques of trade promotion as well as developing specific action plans for marketing their products. Other training and promotion programs can be offered for on developing detailed demand studies for US products.

Market entry services

Participation in US and Dutch trade fairs can be supported both technically and financially. The EVD is a stimulating organization in this. Trade missions are organized for exporters in the Netherlands, as well as for US importers visiting the latter. Dutch participants can attend a training through EVD-organized workshops. Market entry proceeds in a strategic manner, as is shown in figure 6.3.

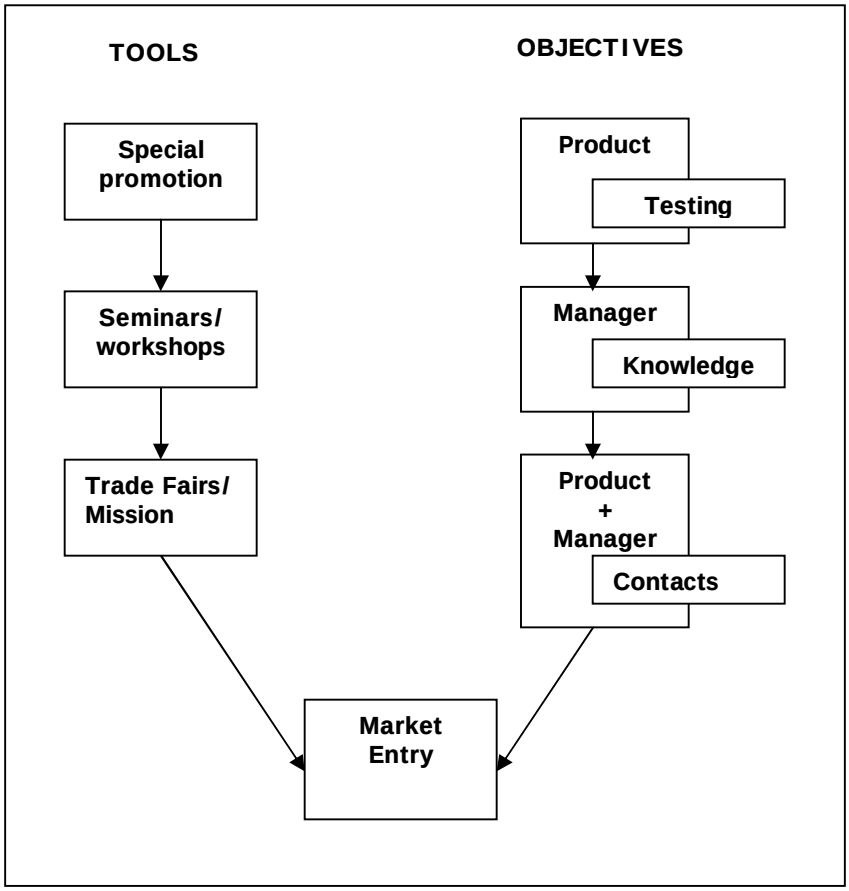


Figure 6.2 A market approach for implementation (Seringhaus and Rosson, 1991)

This strategic market approach to implementation (market entry) requires prospective exporters to successfully walk through a process of participating in special promotions (by using the market product testing); seminars and workshops (to develop understanding of the market requirements; managerial knowledge to export to the USA); and trade fairs or missions (for the purpose of contact development and pursuing concrete market opportunities). The aim of this approach is to assist exporters to be more effective in entering the US market.

6.6 Conclusion

This section describes company support needs and related export promotion assistance based on the literature of Seringhaus. Section 6.2 also discusses the available assistance program set up by the CG. If we compare this to the support activities indicated by the companies, we notice a difference. The current promotion activities by the CG are more based on general market information (seminars/ workshops), with the exception of individual market scanning.

Besides this information, respondents have indicated a need for information on legal formalities, export documentation, selection of distributors/ partners and information on delivery/ payment terms. Table 6.2 illustrates support interventions to reduce the different barriers a company can perceive and the stage of exporting it has reached. An approach to assist exporters to be more effective in entering the US market is discussed in figure 6.3.

7. Conclusion and recommendations

In this chapter conclusions and recommendations of the research are presented. The first section discusses the conclusion of the project. The next section gives a reflection on the evaluation of the research approach, and follows with a reflection on the research validity. Accordingly, recommendations are formulated for the Consulate General in the third section. To complete this chapter, we formulated a few suggestions for further research.

7.1 Conclusion

The Consulate General wants to increase export activities of Dutch companies to the USA. The purpose of this research was to determine what activities could help the CG to encourage Dutch companies to export products or services to the USA. This has led to the following problem formulation in section 1.3:

What are the relevant export support needs of Dutch small and medium-sized companies in technology for sustainable energy and what type of support should the Consulate General in Chicago provide them with regard to exporting to the USA?

In order to meet this objective, we have first examined relevant Dutch small and medium-sized firms in the technology for sustainable energy sector. We analyzed the competences of these Dutch companies on technological and innovative capacity as well as market share in this sector. To select matching segments with the United States, we also looked at the opportunities and demands on the US market. The market demand of the US was analyzed on market scale, development, and investments made in this sector. This resulted in the following relevant segments for Dutch companies: technology for wind energy, solar energy, energy efficiency, biomass, and clean technology.

To analyze company needs in these segments, we have developed and implemented a export support assessment tool. The results describe respondents in different sectors (figure 5.1). We have also explored the perception of the environmental factors, as defined by Woods and Robertson. Table 5.1 shows that legal and political issues were more seen as an obstacle when (thinking about) exporting to the United States, than cultural and economical factors. Product standards imposed by the USA (indicated by 52% of the respondents) were perceived as the strongest obstacle. Cultural and economical factors of the USA acted more stimulating. The strongest stimulus was the English language in the United States (85% of the respondents).

Results of the research show the most important barriers when one wants to start or already is exporting to the USA. Specific company needs are derived from such barriers. Moreover, export promotion support provided by the CG has its greatest impact when it corresponds with the specific needs of the companies in focus.
The three constraints that Dutch companies identified as most important in holding them back from exporting to the USA are:

1. *The European market opportunities:* Companies in the technology for solar energy and energy storage perceived the European market as a market with high potential, due to fast growing markets and good subsidies. Countries in Europe are also perceived to be more appealing to export to than the US, because of smaller geographic, administrative and cultural distances (Ghemawat, 2001) for Dutch companies than America.
2. *Legal framework:* The legal culture of the US and its habits hinder Dutch companies when (thinking about) entering the United States. Dutch companies are afraid of the claim culture. According to them, the US business environment is one in which you have to be

completely insured and even then, there are possibilities for people or other companies to throw in a legal fight. This is perceived as a complex, expensive and time-consuming process.
3. *No information on US market potential:* Dutch companies are not aware of the market demand in the USA. They perceive the US market as a large complex market, where the customers are considered to be more cost-driven than to care for sustainable development. According to the consul general deputy in Chicago: 'The only green thing we have over here is the dollar bill'. However, this research has been conducted, because the awareness for the environment is increasing in the US, due to federal and state policies and global issues explained in chapter one.
In the next section, we evaluate the research approach and research validity.

7.2 Reflection

7.2.1 Evaluation research approach

Prior to the execution of this research, it was intended to specify the focus of the US general demand to the Midwest of the United States (the area of the CG in Chicago). However, the field of technology for sustainable energy is relatively new in the USA. Therefore, statistics on market scale, development and investment were not available at state level. This resulted in a focus on the whole country, meaning that we have not been able to focus on specific state policies. This is however, an important point of attention, because the states in the USA can be considered as individual nations. Every state has it own policies, renewable portfolio goal or standard and its own resources. Ohio for example is the state with the largest coal reserves compared to any single country. To promote alternative technology which would replace this resource would be impossible. Nonetheless, promoting clean technology could be a promising market opportunity.

In regard to the results versus the objectives we do believe this assignment has produced the desired results. Based on the research on relevant segments in the Netherlands and their support needs, support interventions have been formulated.
The new and improved interventions should provide the Consulate General with a service approach that is up to date in terms of what the market is requiring and will therefore offer effective promotion assistance.

7.2.2 Research validity

The responses we have received were mostly from small firms (85.7%). This can influence the recommended interventions. Medium-sized companies can, even when they have reached the same stage of exporting, face different export barriers, and with this different support needs.

For this research, we have used different reports to explore statistics of different segments. This data can be considered very reliable, because we have used not only data information of promotion organizations (e.g. the Agency for International Business and Cooperation), but also reports of independent institutes (e.g. the ECN, EBI, Statistics Netherlands). One remark needs to be made about the different definitions of the segments. Some organizations define in their researches certain segments in such a way that particular types of technology were sometimes excluded and included in other definitions. This can influence the composition of the identified segments. This can be a reason why water management is not considered as a relevant segment (Vries, T. de, 2006).

One remark can be made in relation to the reliability of the assessment of the answers to the environmental dimensions. Respondents can misinterpret a statement, which can result in a different response. This was the case with one respondent. One company, already

exporting to the USA, indicated that the large energy consumption is more an obstacle than a stimulus. After asking the company why they perceived this statement as an obstacle, they responded that it is all about the mentality of the American citizens. According to that company, the fact that the US is a large consumer does not necessarily mean that there is more demand for technology for sustainable energy. People will remain consuming as they have been, because there is little awareness of the importance of the environment.
The intervention areas have been suggested after consulting the theories of Seringhaus and gathering information about the most important needs for export support of Dutch SMEs. Because the companies have been differentiated into groups with similar needs, the CG can focus on the specific needs and achieve better results. The intervention areas reflect the significant and most emphasized support needs by the responding companies as well as consulted literature, fulfilling the objective of this research that refers to how the CG should support them.

7.2.3 Research process

Overall, we can conclude that the research process ran smoothly. The four months spent in Chicago have not just been an experience of a lifetime; the confrontation with the environmental issues and inspiring managers in the US have contributed to our mindset of the need for sustainable energy technology. The US is a wealthy country (USA is estimated on 32.9% of global GDP), but sustainable development is a relative new issue in the Midwest [24]. Working at the CG, it was relatively easy to get in touch with relevant organizations or managers on this subject. We received invitations, every time a subject related event was taken place. Besides this, access to newsletters and –articles were well stimulated.

This resulted in an extensive analysis of literature and supplied us with a clear perspective on what to do and how to execute the study. After the theoretical framework was developed it was clear what kind of information was needed on both the Dutch and the US market to detect the company support needs. The theoretical research framework of Seringhaus has been easy to understand and has functioned as a proper approach to answer the overall research question.

7.3 Recommendation

This section covers the recommendations suggested to the Consulate General. One way of understanding how organizations address company export needs is through considering the barriers faced in international trade. Crucial barriers to increase involvement by companies in foreign markets are managerial motivation, knowledge and resources.

In section 2.5, we discussed a widely recognized framework for understanding export barriers to consider the stage that a company has reached in its export development. Figure 5.4 shows the companies in these stages, and the matrix in figure 6.1 describes the company needs according to these stages. Each group has its own needs and attitude towards export performance. To encourage the CG to support these different groups of exporters, we suggest the following proposals accordingly. The focus of the export promotion activities in the different groups is the following:

Non-exporters: In order to reach the non-exporter, the CG can stimulate these companies by creating or increasing the awareness of the export opportunities. This can be achieved through advertisements and local seminars. In addition, export newsletters or bulletins with information about the success stories of other, similar, companies can trigger the attitude of management.

New exporters: First-time exporters have already given some thought about exporting, and are in need of structural assistance. This can be provided on different levels. Similar to companies not involved in exporting, seminars and export newsletters can trigger management to look at the opportunities. Some new exporters have already gained a positive attitude about exporting, and need information about the opportunities to determine feasibility of exporting. Examples of such support activities are market reviews, supplier/ buyer newsletter, custom market research. When a company is aware of the opportunities, and has explored more market specific data, there can still reasons not to start exporting. Lack of appropriate resources is a common difficulty. Trade missions, financing and insurance can help in this stage.

Expanding exporters: Exporters in this stage are often aware of the opportunities and would like to expand to different markets. These exporters need information on the US market to select the best market entry method and/ or partner. Market visits and export seminars or meetings can facilitate this selection process. On operational level, the CG can offer trade fairs and missions. The lack of resources does not have to be a barrier, due to finance information and insurance, a company can overcome operational barriers.

Continuing exporters: If companies are already exporting, support activities can still be necessary. Continuing exporters also need support activities in order to improve and fine-tune its existing operations. Even exporters already active in the USA sense difficulties on the market. Examples are; product requirements a company needs to meet; the unawareness of the market position compared to the competition; little information about the US market. The CG can support these exporters on informational level via export seminars/ meetings, or an export newsletter. In addition, on operational level, the CG can offer activities such as trade fairs, foreign buyer visits, or assistance in financing and insurance. To support this group the export process is procedural.

7.4 Suggestions for further research

The Consulate General of Chicago is concerned with the export of Dutch companies to the USA. However, the CG is not the only organization that can support Dutch companies in their journey to a foreign country. Other institutions that are able to provide export assistance are the Agency for International Business and Cooperation, the Chambers of Commerce, foreign promotion institutes, etc. The support network is not clear for all support organizations. Such a network can make the export support assistance more efficient, due to cooperation and reference of specialization.
It is therefore helpful to gain insight in the whole network of support organizations for exporting from the Netherlands to the USA. This network can provide information to efficiently support Dutch companies in their export needs. It is because of this that further research is needed to analyze the export support network.

Another suggestion is to approach the Dutch companies face-to-face. This method can eliminate false interpretations. It is more time consuming and difficult than a questionnaire, but a personal interview can uncover more relevant information. The challenging part of this technique would be that the interviewer needs to be consistent in asking questions, in order to avoid discrepancies between respondents.

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[3] http://www.greenpeace.org

[4] http://www.eia.doe.gov/environment.html

[5] http://www.mfa.nl/

[6] http://www.ecofys.com

[7] http://www.netherlands-embassy.org/

[8] http://www.fas.usda.gov/

[9] http://www.jsdnp.org.jm/susEnergy.htm

[10] www.cotswold.gov.uk/nqcontent.cfm?a_id=1484

[11] http://www.nos.nl/nos/artikelen/2005/09/art00007006047D.html

[12] www.wikipedia.org

[13] http://www.senternovem.nl/senternovem/Onderwerpen/onderwerp_duurzame energie.asp

[14] http://www.appz.ez.nl/publicaties/pdfs/05DGE01.pdf

[15] http://www.dsireusa.org

[16] www.eia.doe.gov/fuelrenewable.html

[17] http://www.energy.gov/

[18] http://usinfo.state.gov/journals/ites/0706/ijee/technologies.htm

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ANNEX A

Instructions on how to fill in the questionnaire:

a) **The objective of this research is to find out the major support needs for small and medium companies in the technology for sustainable energy sector in the Netherlands while exporting or starting to export their products in order to formulate export support proposals to improve the current export support system.**

b) **Filling in instructions: answers to the questions below can be given either by marking the relative boxes or by freely filling in the space/or tables given.**

c) **The Consulate General and the University of Twente, the Netherlands, will keep the content of this questionnaire confidential.**

Company Profile	
Company name	**:**
Sub sector(s) involved (wind, solar, hydrogen,etc):	

1. How many persons are employed in your company (including the firm owners who work for the company)?

□ **1 – 15**
□ **15 – 30 persons**
□ **30 – 50 persons**
□ **50 – 100 persons**
□ **100 – 250 persons**
□ **250 - 500 persons**
□ **> 500 persons**

2. Have you heard of the Consulate General in the USA?

□ **yes**
□ **no**

3. The Consulate General is concerned with consular affairs as well as economic and trade affairs. It is established to maintain and stimulate a high competitive position for Dutch businesses. How do you think the Consulate can contribute to your company in exporting to the USA? (more answers are possible)

□ **Business Trips**
□ **Exhibitions**
□ **Individual market scanning**
□ **Seminars**
□ **Promotion budgets**
□
Other;.....

4. Does your company generate export turnover? And if not, does your company would like to start generating income through exporting?

□ **Yes and we wish to expand to a new market (e.g. the USA)**

□ **Yes and we want to improve our current export operations**

□ **No, but we want to start exporting** ***(go to question 6)***

□ **No, we do not want to export** ***(go to question 7)***

□ **No, not anymore** ***(go to question 6)***

5. To which countries did your company export during the past three years?

Country

6. What are (were) initial reasons for your company to start exporting? Please indicate by marking the cell with an X to what extent you experience the importance of the dimension.

	Very important	important	Less important	Irrelevant
Example	***X***			
Growth and profit goals				
Marketing advantages				
Economies of scale				
Unique product/ technology				
Foreign market opportunities				
Risk diversification				
Extend sales of seasonal product				
Excess capacity of resources				
Too limited domestic market				
Stagnant or declining domestic market				
Other (please specify)				

7. Please indicate which answer is most applicable on your company.

(1= totally disagree, 2= disagree, 3= do not know, 4= agree, 5 = totally agree)	Disagree – Agree				
My company has a product which has been successfully sold in the domestic market	□ 1	□ 2	□ 3	□ 4	□ 5
My company has or is preparing an international marketing plan with defined goals and strategies	□ 1	□ 2	□ 3	□ 4	□ 5
My company has sufficient production capacity that can be committed to the export market	□ 1	□ 2	□ 3	□ 4	□ 5
My company has the financial resources to actively support the marketing of our products in the targeted overseas markets	□ 1	□ 2	□ 3	□ 4	□ 5
My company is committed to developing export markets and is also willing and able to dedicate staff, time and resources to the process	□ 1	□ 2	□ 3	□ 4	□ 5
My company is committed to providing the same level of service given to our domestic customers	□ 1	□ 2	□ 3	□ 4	□ 5
My company has adequate knowledge in shipping its product overseas, such as identifying and selecting international freight forwarders, temperature management and freight costing	□ 1	□ 2	□ 3	□ 4	□ 5
My company has adequate knowledge of export payment mechanisms, such as developing and negotiating letters of credits	□ 1	□ 2	□ 3	□ 4	□ 5

(USDA.gov, 2005)

8. What is the perception of your company's management about its product's international competitiveness on the US market?

Not competitive □ □ □ □ extremely competitive

9. Is your company aware of the cultural differences in and business practices between the Netherlands and the USA?

□ Yes □ No

10. Is your company willing to invest in product or process adaptations to be able to match international market requirements, such as technical requirements, or international environmental conditions?

□ Yes □ No

11. Did your company inquire to whether the Netherlands maintain international trade agreements that are relevant for the export of your products?

□ Yes □ No

12. Did your company inquire about governmental support for export of your particular product(s) (for instance via granting subsidies, training, tax credits, etc.)?

□ **Yes** □ **No**

13. Which support organization would your company employ to support in their export behaviour? And in which support needs?

……
……
……
……

14. Please specify which support activities are relevant to your company with reference to exporting (more answers possible)

Support activities	**Relevant support activities**
Example	***X***
Product development	
Package modification	
Production planning	
Legal formalities (duties, tariffs, quotas, regulations)	
Export documentation (e.g. certificate of origin)	
Market information/ Market research	
Display products (trade fairs, exhibition, trade centre)	
Selection of distributors and partners	
Feasibility studies	
Negotiation assistance / contract facilitators / dispute resolution	
Terms of delivery and payment (letter of credit)	
Export credit guarantees against political and commercial risks	
Insurance	
Tax incentive/ subsidies	
Seminars and workshops	
Develop export strategy (e.g. marketing plan)	
Custom procedures	
Quality assurance and standards	
Export financing	
Others, please specify below	

(Swisscontact, 2003)

15. Please specify which environmental factors stimulate your company to export to the USA, and which ones act like an obstacle. Also indicate the extent of importance to your company.

1= large obstacle, 2= obstacle, 3= do not know, 4= stimulus, 5= high stimulus,	Obstacle (1) – stimulus (5)
Cultural	
American way of life (existence of western culture)	□ □ □ □ □ 1 2 3 4 5
Language in the USA	□ □ □ □ □ 1 2 3 4 5
Preferences and prohibitions in the USA with respect to numbers, colors, shapes, sizes, and symbols on products and in promotion of products	□ □ □ □ □ 1 2 3 4 5
Legal	
Tariffs, import duties, and taxes on your products in the USA	□ □ □ □ □ 1 2 3 4 5
Product standards imposed by the USA (e.g. local assembly laws, product packaging and labeling requirements, local safety and environmental regulations)	□ □ □ □ □ 1 2 3 4 5
Required documentation, import procedures, and quotas imposed by the US government	□ □ □ □ □ 1 2 3 4 5
US government participation in trade policies	□ □ □ □ □ 1 2 3 4 5
Visa requirements in the USA	□ □ □ □ □ 1 2 3 4 5
Patent, copyright, and trademark protection in the USA	□ □ □ □ □ 1 2 3 4 5
Politics	
Political strength and leadership	□ □ □ □ □ 1 2 3 4 5
Government's incentives to encourage private business	□ □ □ □ □ 1 2 3 4 5
US Domestic political stability	□ □ □ □ □ 1 2 3 4 5
Economics	
US Gross National Product	□ □ □ □ □ 1 2 3 4 5
Education and employment level	□ □ □ □ □ 1 2 3 4 5

US ownership of consumer goods (e.g. cars, radios, TV)	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**
US energy consumption (e.g. fossil fuels)	□ **1**	□ **2**	□ **3**	□ **4**	□ **5**

(Wood & Robertson, 2000)

16. What have been the constraining factors (main barriers/difficulties) for your company to export its sustainable energy products or services to the USA?

……
……
……
……
……
……

17. What is your overall image about the support activities of the Consulate General when exporting to the US?

……
……
……
……
……
……
……

Thank you very much for your cooperation!!

ANNEX B

Evaluation questionnaire

Operationalisation of the variables

This tool is developed to indicate the relevant support needs Dutch companies are experiencing. To validate this questionnaire we reviewed and consulted different literature. Literature studies have indicated several dimensions which are important for exporting to a foreign country, as is explained in section 2.4 and 2.5. The model in table A1 shows the main literature used for the questionnaire to detect the company support needs.

Table B1 Main focus literature

			Total support needs	
Literature focus		*Questions*	Indirect	Direct
Export behavior	*objective firm characteristics*	the number of employees export experience/ involvement	barriers in export behavior	
	perceived obstacles and opportunities	perception of environmental factors, perception of competitiveness		
	export commitment	export readiness, inquiry for export information, willingness to adapt		
Exporting stage		export status, reasons to export, interview	literature Seringhaus	
Support needs			open question on constraints, need for support assistance	need for support activity

We first discuss the determinants of export behavior and export performance as is illustrated in figure A2. This follows with a description of the stages of exporting, and the analysis of company support needs.

Export behavior

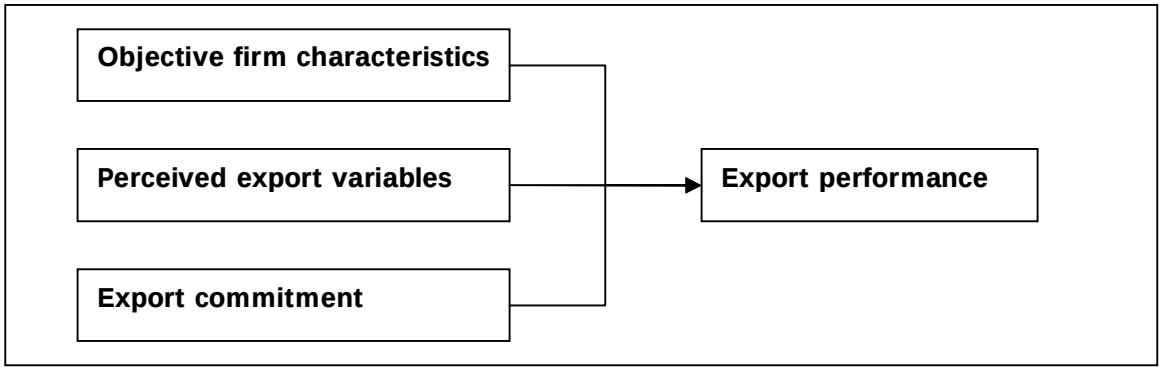


Figure B1 Model of export behaviour (Katsikeas et al, 1996)

Every element in figure A2 will be discussed separately below.

Objective firm characteristics and export experience

This dimension describes the size, employees, export experience in scope (measuring the intensity of a firm's exporting experience), and in length (measuring the diversity of this activity) (Morgan, 1999). There is no universally accepted measure for capturing company size. The most commonly accepted criteria are the number of employees, and the total sales volume. This questionnaire uses the first criteria. The export status is included in the tool, to indicate a level of export experience.

- *Number of employees:* the amount or size of staff employed in the organization, including the firm owners who work for the company.

- Export involvement will be measured by the range of countries a company is exporting to.

Export related perception variables

Katskikeas et al. describe in their research for export marketing proactive and reactive stimuli. They propose that proactive stimuli are those connected with the aggressive behaviour of a company and deliberate search for export opportunities (pull factors). Reactive stimuli are those associated with the company's reaction to changing conditions (push factors). They also indicate that each pattern of competitive export strategy is correspondingly connected with specific competitive advantages.

The capability to cope with exporting problems is of influence on a firm's performance. Seringhaus (1990) states that the existence of such problems can limit a firm's ability to effectively seek, identify, and exploit export market opportunities. This dimension presents items which reflect a firm's perception of obstacles and opportunities.

***- Awareness cultural differences:* Cross-cultural training and training is imperative in nowadays global environment. Employees deal with a variety of relocation and intercultural challenges as they transition to a new working environment. Important issues include dealing with an unfamiliar language, the lack of cultural awareness, limited knowledge of new business protocol, etc.[1] However, Wood & Robertson examined the importance of different environmental factors and described the cultural dimension was rated as least important. They conclude that information on a market's culture is not unimportant, but cultural information becomes important after questions have been answered such as market potential, legal structure, politics, and economical issues.**

- Perception obstacles and opportunities of environmental factors:

Wood and Robertson (2000) point out the importance of the foreign environment when analyzing export opportunities. They state "the rapidly shifting alternatives in terms of risk, stability and potential, need to be considered when doing business overseas." They come up with different examples such as the importance of information concerning the legal structure in a different market may be related to the type of international transaction being considered. Romanelli and Tushman (1988) agree and pose that "the performance of a firm is highly related to the evolutionary

[1] http://www.culturalawareness.com

and dynamic nature of fit between the environment and the organization." However, Child (1972) debates whether decision makers in an organization can significant influence this fit by taking strategic decisions and actions.
Romanelli and Tushman claim that where environments are changing and/ or performance outcomes are low or declining, leadership's primary task is to intervene in ongoing patterns of commitment and exchange to redirect the character of an organization's relationship with its environment. To include this element in the questionnaire, we used the information framework of the export environment of Wood and Robertson (table A3), narrowed with the important dimensions to consider by Ghauri and Holstius: economical, political, cultural and economical.

Table B2 Dimensions environmental factors

Primary environmental factors	Subsidiary export dimensions
Politics	Stability
	Diplomatic relations
	Internal policies
Economics	Development and performance
	Production strength
	Consumption
Culture	Cultural unity
	Cultural differences
Legal	Tariffs/ taxes
	Non-tariff
	Other legal

(Wood and Robertson, 2000)

Export commitment
Leonidou (1995) indicates that a well-prepared and strongly stimulated firm will have a better opportunity for success in international markets than an ill-prepared and weakly motivated company. Katskikeas, Piercy and Ioannidis (1996) confirm this: managerial commitment to exporting activities is likely to have a particularly strong impact on the export behavior and success.

- *Export readiness*: Export involvement or export commitment can be explained in the export readiness of a company. The more firm specific dimensions of the CG are included in this construct.
The United States Department of Agriculture (USDA) has developed a tool that rates a company on its export readiness based on different dimensions. These dimensions identify and assess the areas of which a company needs to strengthen or improve its export activities:

Successful in domestic market
International orientation
Production capacity
Financial resources
Export commitment
Adequate knowledge

(source: www.fas.usda.gov)

- Inquire about governmental support
- Inquire about international trade agreements
- Willingness to invest internationally

Stage of exporting

Seringhaus proposes five types of exporter for targeting export promotion support, which recognizes that firms are at different export stages. Firms in different export stages face different decision situations and accordingly different support activities. The questionnaire contains one question about the export status of the companies, which represents the table below.

Non- exporters	**Firms with products/ services with potential to export that have never thought of, or shown no desire to export**
Failed exporters	**Firms with previous export experience that have led them to withdraw from foreign market(s)**
First time exporters	**Firms that are aware of foreign market opportunities and sense that these might help them to meet their growth objectives**
Expanding exporters	**Firms that wish to move their products/ services into one or more new markets**
Continuing exporters	**Firms that are interested improving their export operations as a result of current and projected performance levels**

(Seringhaus, 1991)

***Reasons to export*: To understand why firms engage in exporting, we can assume that the driving forces to start or exploit export activities are because firms want to use and develop its resources to achieve their organizational objectives. And understanding these export motives can provide guidelines for effective export planning and export promotion (Katsikeas, 1996). An overview of export motivations is shown in table A4. Earlier is mentioned the difference between pro- and reactive stimuli. In table A4 Albaum et al have classified the motivational factors among the firm behaviour. These are obtained after consulting with the CG, which dimensions coincide with their objectives.**

Table B3. Classification of export motives

		MOTIVATIONAL FACTORS	
		Internal	External
FIRM BEHAVIOUR	Proactive	- Growth and profit goals - Marketing advantages - Economies of scale - Unique product/ technology competence	- Foreign market opportunities
	Reactive	- Risk diversification - Extend sales of a seasonal product - Excess capacity of resources	- Too limited domestic market - Stagnant or declining domestic market

The internal motivational factors in the first quadrant indicate a proactive attitude towards exporting. Companies selecting these factors are more likely to explore new markets (expanding exporters), because they are deliberately searching for export opportunities.

In addition we deducted an interview to confirm and emphasize the stage of exporting of companies. This is based on three factors asked to every company:
The current export performance: looking at the advantages of current export performance, is it attractive to expand to a new market or is the focus on fine-tuning the current export activities.
The firm objectives: are the firm objectives in line with expanding to a new market or continuing the current export activities.
The capacity to enter a new market: If the company wants to expand to a new market, how far along in the process is it? Has the company considered an international marketing strategy, or how to manage sales and distribution operations?

Company support needs

The support needs will be acquired in a direct and indirect way. We asked companies what support activities they considered to be relevant for their export performance. The support activities mentioned in this question are based on the research done by Mekkelholt and Orelio (2003). They examined different support activities relevant to exporting. A list of these activities is given below:

Table B5 Relevant support activities

Product development
Package modification

Production planning
Legal formalities (duties, tariffs, quotas, regulations)
Export documentation (e.g. certificate of origin)
Market information/ Market research
Display products (trade fairs, exhibition, trade centre)
Selection of distributors and partners
Feasibility studies
Negotiation assistance / contract facilitators / dispute resolution
Terms of delivery and payment (letter of credit)
Export credit guarantees against political and commercial risks
Insurance
Tax incentive/ subsidies
Seminars and workshops
Develop export strategy (e.g. marketing plan)
Custom procedures
Quality assurance and standards
Export financing

(Swisscontact)

In addition we asked companies about the main constraints they perceived when exporting their products or services, which organization they have employed or would employ to support in their export behavior, and for which support needs.

Different explanations have been offered as to why firms, in general, have been reluctant to export: Lack of macro level incentives, apprehension of export marketing, an attitude of indifference, a lack of knowledge. To have a clear-cut question, we have asked the company what their main barriers were why they were not exporting. And if they have inquired information on their own related to exporting. Managerial commitment to exporting is likely to have a particularly strong impact on export behaviour (Katskikeas et al, 1996).

ANNEX C

Figure C1. Responses on cultural statements

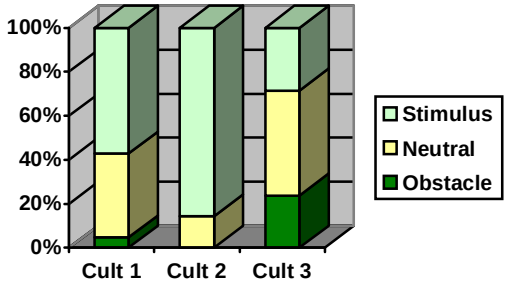


Figure C2. Responses on legal statements

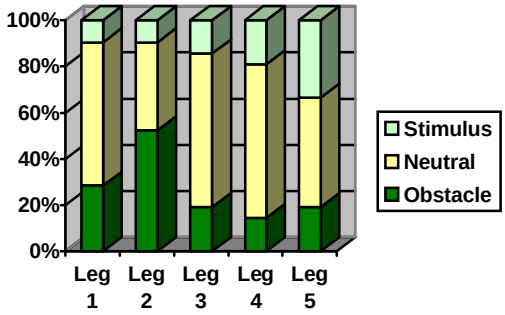


Figure C2. Responses on political statements

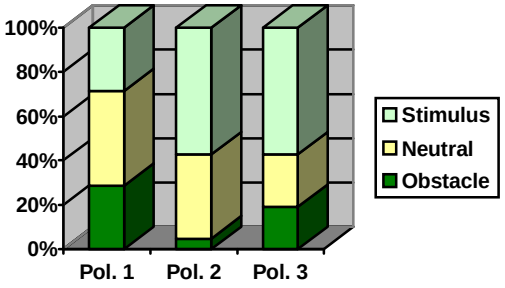
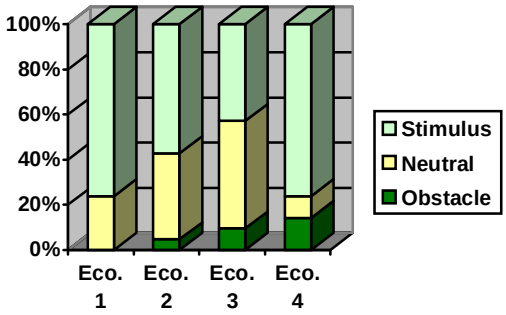


Figure C2. Responses on economical statements



In order to view the particular statements of these environmental dimensions, see the questionnaire in ANNEX A.